Perfect score: Scoring table:

Sequence:

Searched:

Database

OM nucleic

Run on:

us-09-914-001-1.rst

```
1. :500
//organism="leam mays"
//organism="leam mays"
//organism="leam mays"
//organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"/organism="leam"
                                                 BIT77125 ESTF18070
BF72817 1000056C1
BF73817 1000056C1
BF415950 MGG002.G0
AW90697 ESTF443204
BE593228 ESTF443204
BE593238 ESTF3604
BE177933 ESTF3604
BE416123 MGG004.H0
BE417033 MGG015.D0
BE45327 946048C03
BE45327 946048C03
BE45327 946048C03
BE035254 MOG015.D0
BE035254 MOG015.D0
BE035254 MOG015.D0
BE035254 MOG015.D0
BE035254 MGG015.D0
BE035254 MGG015.D0
BE035254 MGG015.D0
BE035254 MGG015.D0
BE035254 MGG015.D0
BE035254 MGG015.D0
BE17383 MGG015.D0
BE17383 MGG015.D0
BE17383 MGG015.D0
BE17383 MGG015.D0
BE17383 MGG015.D0
BE17483 MGG026.D0
BE17454 WHE0626.D0
BE17454 WHE0626.D0
BE17454 MGG026.D0
BE17454 MGG026.D0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               500 bp mRNA linear EST 30-MAR-2000 - Early embryo from Delaware Zea mays cDNA, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea. [ (bases 1 to 500) Walbot, V. Walbot, V. Maize ESTs from various cDNA libraries sequenced at Stanford
                       BE445315 WHE1134_D
AW060121 687002G02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Department of Biological Sciences
Stanford University
Tel: 650 723 2227
Fax: 650 725 8221
Email: walbof@stanford.edu
Plate: 687002 row: G column: 02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ALIGNMENTS
                                                                     BF728117
BE41595772
BE41595772
BE4159577
BE593228
BI17993328
BE415123
AW5120984
BE6122884
BE6122884
BE6122884
BE6122884
BE6122601
BE711813
BE61322604
BE711813
BE6132804
BE711813
BE6132804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:6020977
                                                                                                                                   10
10
10
9
                                                                                                                                                                                             100
                                                                                                                                                                                                                                                       010000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
Contact: Walbot V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AW065905
687002G02.yl 687
sequence.
AW065905
AW065905.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                University
Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zea mays
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
AW065905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
 July 15, 2002, 08:28:48; Search time 3090.94 Seconds (without alignments) 11947.068 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BG415676 HVSNEX000
BF625060 HVSNEX000
BMO73464 MESTG7-G1
BMO73464 MESTG7-G1
BE345465 946035B01
BE455437 HVSNEG001
A1586713 486055E12
BE475748 946048C03
AN330561 707029A05
B1435969 ESTF320948
BE34546 946035B01
BE34546 946035B01
BE3417348 MUG020.A1
A1665720 a992D088.x
BE416673 MUG009.D0
BE416673 MUG009.D0
BE416673 MUG009.D0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AW065905 687002G02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                              2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Description
                                                                                                                                                                 US-09-914-001-1
2736
1 atggcgccgagctccccgtc......caggggaggtagttgagcag
                                                                                                                                                                                                                                                                                                     27472414
             GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                                                                                      13736207 segs, 6748477542 residues
                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BG415676
BF625060
BF625060
BM073464
BE345465
B1178113
BE455437
A1586713
BE475748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AW330561
BI435969
BI180003
BE345464
BE417348
                                                                         nucleic search, using sw model
                                                                                                                                                                                                                            IDENTITY_NUC Gapon 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gb_gss:*
em_gss_hum:*
em_gss_inv:*
em_gss_inv:*
em_gss_pln:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                      em_estba:*
em_estlm:*
em_estln:*
em_estln:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_estlo:*
em_htc:*
em_estlo:*
em_htc:*
em_estlo:*
em_htc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5500
638
841
7717
7717
761
761
694
694
694
694
694
694
694
694
693
368
                                                                                                                                                                                                                                                                                                                                                                                                                                            EST: *
```

AI065720 BE416603 BI922800

20

309.8 309.8 295.4 292.8 282.8 271.2 268.4 268.4

υ

Score

ŏ

ò

```
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Lillopsida; Poales; Poaceae; Pooldeae; Triticeae; Hordeum.

1 (Dases 1 to 638)
Wing, R., Close, T.J., Kleinhofs, A., Wise, R., Kannangara, G., von Wetstein, D., Akhunov, E., Chin, A., Choi, D.W., Fenton, R.D., Kianian, P., Otto, C., Simons, K., Zhang, D., Bequm, D., Frisch, D., Yu, Y., Henry, D., Palmer, M., Rambo, T., Simmons, J., Oates, R. and Main, D. Development of a genetically and physically anchored EST resource for barley genomics: Morex testa/pericarp cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BG415676 638 bp mRNA linear EST 23-OCT-2001
HVSMEk0007G15f Hordeum vulgare testa/pericarp EST library
HVcDNA0013 (normal) Hordeum vulgare cDNA clone HVSMEk0007G15f, mRNA
               developing embryos sampled at 14, 21, 28 and 35 days after pollination of the Illinois High Oil Maize Strain Cycle 90. This closed strain has been selected for high Oil concentration for 90 generations and originates from the 1890s era open pollinated variety Burr's White"
                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                         1882 gtagtacgtggaggagcccctaatgccttttcgcaatgtatggttgcatatgacgagaca 1941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2062 cagcgctacattcgactcagtcgtaaagacatgttggattggtccttcggtgagggggct 2121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2122 ggtccagatgaaggcaagctcttggatcaccagcctttacggcttaacaacgatgattat 2181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gagegiggticaacagaticetgicaagaagggagecaacticegegaeetaaagggegig 2241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2242 agggttggagcaaacaatattgttgagtgggatccagaaatcgagcgtgtgaaactttca 2301
                                                                                                                                                                                                                                                                            1822 ctctggggtgctctttcttccatggtgctccctaagtatcctctgcccacctatgatgtt 1881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2002 gitcaaaaicaccagcciaacgaigtgaiggagiaiggiggitcccccaagaccgaatic 2061
                                                                                                                                                                                                                                                                                                                                                                                                                                     242 CAGCGCTACATTCGACTCAGTCGTAAAGACATGTTGGATTGGTCCTTCGGTGAGGGGGCT 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                               2 CTCTGGGGTGCTCTTTCTTCCATGGTGCTCCCTAAGTATCCTCTGCCCACCTATGATGTT 61
Developed from a pool of equal amounts of RNA from
                                                                                                                                                                                                                                        ;
                                                                                                                                                                                               Length 500;
                                                                                                                                                                                                                                        10; Indels
                                                                                                                                                                                          Score 483; DB 9;
Pred. No. 5.2e-82;
0; Mismatches 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GI:13321227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tctgggaaaccactggttc 2320
                                                                                                                                                                                             17.78;
98.08;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTGGGAAACCACTGGTTC 500
                                                                                                                                                                                                                                     Matches 489; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hordeum vulgare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence.
BG415676
BG415676.1
                                                                                                                                                                                                                    Similarity
                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   barley.
                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
BG415676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
```

```
/note="Weetor: lambdaLAP; Site_1: EcoR1; Site_2: Xhol; Plants were raised from seeds in a Controlled Environments growth Chamber maintained in continuous light at 180c, and growth Chamber maintained in continuous light at 180c, and growth Chamber maintained in continuous light at 180c, and growth Chamber were dissected from developing Kernels at Washington State University, Pullman, WA (Kannangara, von Wetstein). Total RNA was prepared, poly(A) RNA was purified, one cDNA library was made, and 1 million pfu were in vivo excised to give pBluescript SK(-) cDNA phagemids in the TJ Close lab at the University of California, Riverside (Akhunov, Chin, Choi, Close, Fenton, Kianian, Otto, Simons, Zhang). Phagemids were plated and picked at the Clemson University Genomics Institute (CUGT) (Begum, Palmer, Frisch, Atkins and Wing). Plasmid DNA preparations, DNA sequence in an equence analysis were performed at CUGI (Wing, Yu, Frisch, Henry, Simmons, Oates Rambo, Main). The sequence has been trimmed to remove vector sequence and contents a minimum of 100 bases of phred value 20 or above. For more details on library preparation and sequence analysis see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         http://www.genome.clemson.edu/projects/barley. To order this clone see http://www.genome.clemson.edu/orders Also see Close TJ, Wing R. Kleinhofs A, Wise R (2001) Genetically and physically anchored EST resources for barley genomics. Barley Genetics Newsletter 31:29-30. (http://wheat.pw.usda.gov/ggpages/bgn/31/cover.html)" 138 c 153 g 188 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1722
                                                                                                                                                                                                                                                                                                  /cultivar="Morex"
/cultivar="Morex"
/db_xref="texton-4513"
/db_xref="HoxBub007G15f"
/clone_llb="HoxBum vulgare testa/pericarp EST llbrary
HVcDNA0013 (normal)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1483 gaagggcacaaaagaaagattctcccactgcctggtgatgttgatgtcatttgtggaggc 1542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gatgagaaaaacaaacaaatggtgactttcatggatattgtgggcgtacttgaagcccaag 1662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   tatgotttgagotgocttgttgctatgaagtaccaagogogogttggaatgatggtggct 1782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10; Length 638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15.0%; Score 411.6; DB 10; 78.1%; Pred. No. 2.2e-68; tive 0; Mismatches 139;
                                                           100 Jordan Hall, Clemson, SC 29634, USA Tel: 864 656 7288
Fax: 864 656 4293
Email: rwing eclemson.edu
Total ng bases = 489
Seg primer: AATTAACCCTCACTAAAGGG
High quality sequence stop: 634.
                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="testa/pericarp"
/lab_host="TJC121"
            Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                  /organism-"Hordeum vulgare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 78.1
Matches 495; Conservative
Contact: Wing RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                      FEATURES
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ġ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

δŏ g g

Q

g δy g Ω g ŏ a

ò

us-09-914-001-1.rst

```
Hordeum vulgare
Buckaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Wiliopsida; Poales; Poaceae; Pooideae;
Triticeae; Hordeum.

1 (bases 1 to 841)
Wing, R., Close, T.J., Kleinhofs, A., Wise, R., Begum, D., Frisch, D., Yu, Y., Henry, D., Palmer, M., Rambo, T., Simmons, J., Oates, R., Choi, D.W., Y., Henry, D., and Main, D.
Fenton, R.D. and Main, D.
Development of a genetically and physically anchored EST resource for barley genomics: Morex cold-stressed seedling shoot cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Vector: lambdaZAP; Site_1: EcoR1; Site_2: Xho1; Seeds were surface sterilized then germinated under axenic conditions in the dark at room temperature on filter paper with water, nystatin and cefotaxime in covered crystallization dishes. Five-day old seedlings were
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HVSMEa0005K18f Hordeum vulgare seedling shoot EST 17-OCT-2001 HVCDMSA0001 (Cold stress) Hordeum vulgare cDNA clone HVSMEa0005K18f, BF625060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .841

Corganism="Hordeum vulgare"

/cultivar="Morex"

/db_xref="taxon:4513"

/clone="HysMEa005KH8f"

/clone="lib="Hordeum vulgare seedling shoot EST library

HycDNA0001 (Cold stress)
                                                                                                                                                                                                                                                                      1903 aatgeettttegeaatgtatggttgeatatgacgagacacaaaaaccateectgaaaaa 1962
                                                                                                                                                                                                                                                                                                                                                                2023 gatgtgatggagtatggtggttcccccaagaccgaattccagcgctacattcgactcagt 2082
1843 atggtgetecetaagtateetetgeecaectatgatgttgtagtacgtggaggageeet 1902
                                                                                                                                                                                                            library
Unpublished (2001)
On Dec 18, 2000 this sequence version replaced gi:11888794
Contact: Wing RA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100 Jordan Hall, Clemson, SC 29634, USA Tel: 864 656 7288
Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      //tissue_type="Seedling shoot"
/lab_host="TJC121"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         cgtaaagacatgttggattggtccttcggtgagg 2116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  primer: AATTAACCCTCACTAAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: rwing@clemson.edu
Total hq bases = 551
Seq primer: AATTAACCGTCAAAA
High quality sequence stop: 8
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BF625060.2 GI:13081459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Clemson University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    barley.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                           2083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
BF625060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
```

```
incubated at 5oc for 2 days. Shoots were then harvested, total RNA was prepared, poly(A) RNA was purilied, one primary unamplified cDNA library was made, and 600000 pfu were in vivo excised to give pBluescript SK(-) cDNA plagemids. These steps were performed in the TJ Close laboratory at the University of California, Riverside (Choi, Close, Fenton). Phagemids were plated and picked at the Clemson University Genomics Institute (CUGI) (Begum, Palmer, Frisch, Atkins and Wing). Plasmid DNA preparations , DNA sequencing and sequence analysis were performed at CUGI (Wing, Yu, Frisch, Henry, Simmons, Oates, Rambo, Main); The sequence has been trimmed to remove vector sequence and contains a minimum of 100 bases of phred value 20 or above. For more details on library preparation and
                                                                                                                                                                                                                                                                                                       http://www.genome.clemson.edu/projects/barley. To order this clone see http://www.genome.clemson.edu/orders Also see Close TJ, Wing R. Kleinhofs A, Wise R (2001) Genetically and physically anchored EST resources for barley genomics. Barley Genetics Newsletter 31:29-30. (http://wheat.pw.usda.gov/ggpages/pgn/31/cover.html)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aggggagtgaccctctgtaccagctgcctccaagtttcacctctgttggaggacgcactg 2680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2441 atccgactcaagcaagggtcctcactatccgggagaacgcaaggttacagggcttccccg 2500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2501 attactaccgattgtttggcccgatcaaggagaagtacattcaagtcgggaacgcagtgg 2560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2021 acgatgtgatggagtatggtggttcccccaagaccgaattccagcgctacattcgactca 2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2141 tettggateaceageetttaeggettaacaaegatgattatgagegggtteaaeagatte 2200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ttgttgagtgggatccagaaatcgagcgtgtgaaactttcatctgggaaaccactggttc 2320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ctgactatgcaatgtcattcatcaagggcaaatcactcaagccgtttgggcgcctgtggt 2380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         601 AIGCGGGGCAIGAIGCGCTGTTTGTCCTTCCCGAGACTTCACCAACGTCGGGCAGACG 660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 ATGAGGTGATTGAATATCGTGGTCAACCCAAGACTGAATTCCAGGGGTATATACACTTA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ctgtcaagaagggagccaacttccgcgacctaaagggcgtgagggttggagcaaacaata
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421 ACCCGAACCAGGGACGTGTTTTGACTGTCCGCGAGAACGCTAGGCTGCAAGGGTTCCCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 407; DB 10; Length 841;
Pred. No. 1.8e-67;
0; Mismatches 185; Indels
                                                                                                                                                                                                                                                                                              sequence analysis see
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match 14.9%;
Best Local Similarity 74.0%;
Matches 529; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                          190
                                                                                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ДD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δy
```

1;

ö

us-09-914-001-1.rst

```
558 bp mRNA linear EST 17-JUL-2000
$46035801.y1 946 - tassel primordium prepared by Schmidt lab Zea
mays CDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Anote-Torgan: tassels; Vector: HybrizAP; Site_1: EcoRI; Site_2: XhoI; George Chuck dissected immature tassels between Imm and 3mm. Sharon Stanfield prepared the CDNA library in HybrizAP. Sample insert size range was 350 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zea mays
Eukaryochyta; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
clade; Panicoideae; Andropogoneae; Zea.
1 (bases 1 to 558)
Walbot,V.
Maize ESTs from various cDNA libraries sequenced at Stanford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /tissue_type="tassels" //tissue_type="tassels" /dev.stage="just after the transition from vegetative to inflorescence development" /lab_hose="XLOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Par: 650 723 227

Fax: 650 725 8221

Email: walbot(estanford.edu

Plate: 946035 row: B column: 01.

Location/Qualifiers

/ organisme-"sea mays"

/ organisme-"taxon:4577"

/ db_xrefe-"taxon:4577"

/ clone_lib="946" - tassel primordium prepared by Schmidt
                                                  2531
                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                        ggagaacgcaaggttacagggcttccccgattactaccgattgtttggcccgatcaagga
                                                                                                                                                                                                       .;
0
                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            University
Unpublished (1999)
Contact: Walbot V
Contact: Walbot V
Department of Biological Sciences
Stanford University
855 California Ave, Palo Alto, CA 94304, USA
   Pred. No. 4.1e-63;
0; Mismatches 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:9254997
99.78;
 Best Local Similarity 99.7
Matches 384; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         lab,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BE345465.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                        2472
                                                                                                                                                                                                                                                                                                                               2592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT
BE345465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                     qq
                                                                                                                       ò
                                                                                                                                                       QQ
                                                                                                                                                                                            ò
                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                             ογ
                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                  οy
                                                                                                                                                                                                                                                                                                                                                                                                                                 q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (<http://depts.washington.edu/ventures/collabtr/direct/index.htm>#brt). Overall sequence quality assessment and vector trimming were conducted using the Lucy software (<http://www.tign.org/softlab/>). Lucy parameters were set to ensure an overall trimmed quality of 97.5% or better without any vector fragments in the chosen high-quality region of each sequence. Low-quality bases between the poly-T and the high-quality region were replaced with N's to serve as spacers.
                                                                                                                       BM073464 717 bp mRNA linear EST 13-NOV-2001 MEST67-G10.T3 ISUM4-TN Zea mays cDNA clone MEST67-G10 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BACKWARD: Backward PCR primer sequence, primer T3 (ATT AAC CCT CAC TAA AG)
Seq primer: primer T3 (ATT AAC CCT CAC TAA AG).
Location/Qualifiers
1. 717
                                                                                                                                                                                                                                                           Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Lillopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POR PRIMERS
FORWARD: Forward PCR primer sequence, primer T7-1 (AA TAC GAC TCA
CTA TAG)
                                                                                                                                                                                                                                                                                                                                                                                                                   Iowa State University
6405 Agronomy, Iowa State University, Ames, IA 50011-1010, USA
TT: 515-294-0975
Fax: 515-294-2299
Emall: schnable@lastate.edu
Individual basecall and confidence value were assigned using the
Phred software,
                                                                                                                                                                                                                                                                                                            (bases 1 to 717)
Qiu.F., Cui.F., Guo,L., Ashlock,D.A, Wen,T.J. and Schnable,P.S.
Expressed Sequence Tags from B73 Maize Seedlings and Silks
Unpublished (2001)
Contact: Patrick S. Schnable
Schnable Laboratory
 Score 384; DB 10; Length 717;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /tissue_type="Seedling and silk"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Zea mays"
/cultivar="B73"
/db_xref="taxon:4577"
/clone="MEST67-G10"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="ISUM4-TN"
                                                                                                                                                                                            GI:16917866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14.0%;
                                                                                                                                                                           BMO73464
BMO73464.1
                                                                                                                                                                                                                               Zea mays.
                                                                                                                                                                                                                                                Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                       RESULT 4
BM073464/c
                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                           ACCESSION
                                                                                                                                                                                          VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                   COMMENT
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BI178113 761 bp mRNA linear EST 09-JUL-2001 EST519058 cSTE Solanum tuberosum cDNA clone cSTE12D14 5' sequence,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; eussterids I; Solanales; Solanaceae; Solanum.

1 (bases 1 to 761)
van der Hoeven, R., Bezzerides, J., Bachem, C., Visser, R., Cho, J., Chiemingo, A., Bougri, O., Buell, C.R., Ronning, C., Tanksley, S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2431 gitataaitcaitccgactcaagcaagggitctcactaitccgggagaacgcaaggitacag 2490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2611 ggtgaatctgaggggagtgaccctctgtaccagctgcctccaagtttcacctctgttgga 2670
                                                                                                                                                               2371 cgcctgtggtgggacgagacagttcctacagttgtaaccagagcagagctcacaaccag 2430
                                                                                                                                                                                                                                                                                                                 2491 ggcttccccgattactaccgattgtttggcccgatcaaggagaagtacattcaagtcggg 2550
                                                                                                                                                                                                                                                                                                                                                                                      241 GGTGAATCTGAGGGGGGGGGGGCCTCTGTACCAGCTGCCTCCAAGTTTCACCTCTGTTGA 300
                                                                                                                                                                                                                                                                            61 GITATAATICATCCGACTCAAGCGAGGGTCCTCACTATCCGGGAGAACGCAAGGITACAG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /tissue_type="axillary buds of stem explants; growing sink-tubers"
                                                                                                                              Gaps
                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished (2001)
Contact: Cathy Ronning
Contact: Cathy Ronning
The Institute for Genomic Research
For clone Info: please contact Research Genetics, Libraries
Division tel 1-800-711-6195, email cdna@resgen.com
                                                                                                                                                                                      121 GGCTTCCCTGACTACTACCGATTGTTTGGCCCGATCAAGGAGAAGTACATTCAAGTTGGG
                                                                                                                              ó;
                                                                                        13.1%; Score 358; DB 10; Length 558; 98.6%; Pred. No. 3.5e-58; tive 0; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Generation of ESTs from in vitro grown microtubers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /corganism="Solanum tuberosum"
/cultivar="Bintje"
/db_xref="taxon:4113"
/clone="cSTE12D14"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="7, 8 and 10 days"
/lab host="SOLR"
average.'
127 t
Kb with a 1 Kb
143 c 170 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BI178113.1 GI:14643924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Seq primer: M13F-R.
                                                                                                        Best Local Similarity 98.6
Matches 361; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           potato.
Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA sequence.
BI178113
  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGCAG 366
                  118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Baker, B
                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                        2551
                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
BI178113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                         ŏ
                                                                                                                                                                                                                                                                          a
                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                 ð
```

```
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2: XhoI; Tissue supplied by Christian Bachem and Richard Visser (Department of Plant Breeding, Wageningen University, The Netherlands). The cSTA libraries will attempt to capture the induction and initiation/initial growth of the tuber in an in vitro system as described in Bachem et al. (Plant Journal, 1996). Small microtubers develop from axillary buds attached to stem explants when placed on a high sucrose medium (10%). Visible morphological changes occur synchronously at day five in the axillary buds. The first library, cSTA (1-20) consists of axillary buds harvested on days 1.3. This targets those genes involved in induction of the microtubers. The following libraries, cSTA (21-40) and cSTA (41-60). capture genes involved in tuber initiation and outgrowth. This library is noted as P3 in TankSley lab notebooks."
                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   agatteteecaatgeetggtgatgttgatgteatttgtggaggeecaecatgeeaaggta 1558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aaatggtgactttcatggatattgtggcgtacttgaagcccaagtatgttctcatggaaa 1678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1739 tigitgetatgaagtaccaagegegetiggaatgaiggiggeiggtigetatgetete 1798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1859 atcetetgeceacetatgatgttgtagtacgtggaggagecectaatgeettttegeaat 1918
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1979 atgcaatttcagatttaccaaaggttcaaaatcaccagcctaacgatgtgatggagtatg 2038
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1379 totattttaaggtocagtgggaaggatacggcoctgaggaggatacatgggaaccgattg 1438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cacagitcaggaigcgigiticeteiggggigetetiteticeaiggigeteetaagi 1858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    242 AACTIGATGICIACATGGGACATTGIGGATTICTIGAAACCCAGGITGGATTAATGGAGA 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62 ATGGCTTAAGTGACTGCCCGAAGAAATCAAAGAGTTTGTGGGGGAAAGGCTTCAAAGCAA 121
                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2 TTTACTTCAAGGTCCGCTGGAGGGTTATGGTCCAGAGGAAGACACCTGGGAGCCAATAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 122 ATCTTTTGCCGTTGCCTGGTGATGTTGTATGCGGTGGACCACCTTGCCAAGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           422 CACAATTICGTATGCGTGTCTTCATGTTGGTGCTCTTTCATCAGAGAAGTTGCCACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1919 gtatggttgcatatgacgagacacaaaaaccatccctgaaaaagccttgcttcttggcg
                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                              Score 324; DB 10; Length 761;
Pred. No. 1.1e-51;
0; Mismatches 235; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 11.8%;
Best Local Similarity 66.4%;
Matches 465; Conservative (
                                                                                                                                                                                                                                                                                                            208
                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  οq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ρy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
```

ij

Gaps

ï

2253

2372

TITLE

475

```
486055EL2.x4 486 - leaf primordia cDNA library from Hake lab Zea Ar586713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoldeae; Andropogoneae; Zea. 1 (bases 1 to 418)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:4577"
/clone_lib="486 - leaf primordia cDNA library from Hake
lab"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2433 tataattcatccgactcaagcaaggytcctcactatccgygagaacgcaaggttacagyg 2492
                                                2074 cgactcagtcgtaaagacatgttggattggtccttcggtgaggggggttggtccagatgaa 2133
                                                                                                                                       ggcaagetettggateaceageetttaeggettaacaaegatgattatgagegggtteaa 2193
                                                                                                                                                                                                                                                                                                                            aacaatattgttgagtgggatccagaaatcgagcgtgtgaaactttcatctgggaaacc- 2312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2373 cctgtggtgggacgagacagttcctacagttgtaaccagagcagagctcacaccaggt 2432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2493 cttccccgattactaccgattgtttggcccgatcaaggagaagtacattcaagtcgggaa 2552
                                                                                                                                                                   296 TTTGGTCCCTGACTATGCAGTGTCCTTCATCAAGGGCAGATCACCAAAGCCGTTTGGTCG 355
                                                                                         56 CGACTTAGTCGTAAAGATATGTTGGACTATTCATTTGGTGATGACACTTGTCCTGAAGAA 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Maize ESTs from various cDNA libraries sequenced at Stanford
                                                                                                                                                                                                                                                                                                                                                                                                                       2313 actggttcctgactatgcaatgtcattcatcaagggcaaatcactcaagccgtttgggcg
                                                                                                                                                                                                                                  cagattcctgtcaagaagggagccaacttccgcgacctaaagggcgtgagggttggagca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   416 CATTCTGCACCCGAACCAGGACGTGTTTGACTGTCCGCGAGAACGCTAGGCTGCCAGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="leaf primordia"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .418
/organism="Zea mays"
/cultivar="B73"
  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:4573064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            University
Unpublished (1999)
     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A1586713.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Walbot, V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zea mays
     400;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 8
AI586713/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
     Matches
                                                                                                                                            2134
                                                                                                                                                                                       116
                                                                                                                                                                                                                                     2194
                                                                                                                                                                                                                                                                                                                              2254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                  Db
                                                                                                                                                                                                                                                                                                                                                                       Q
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                           g
                                                                                                                                            ò
                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                           QQ
                                                                                                                                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                    Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Pooideae; Tratificeae; Hordeum.

1. (bases 1 to 590)

1. (bases 1 to 590)

1. (All Henry, D., Pallmar, M., Rambo, T., Simmons, J., Choi, D. W., Fenton, Y., Henry, D., Pallmar, M., Rambo, T., Simmons, J., Choi, D. W., Fenton, R. D., Close, S. J., Oates, R. and Main, D.

Development of a genetically and physically anchored EST resource for barley genomics: Morex pre-anthesis spike cDNA library

L. Unpublished (2001)

On Jul 26, 2000 this sequence version replaced gi:9465113.

Confact: Wing RA

Clemson University Genomics Institute

Clemson University Genomics SC 29634, USA

Tel: 864 656 728

Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alab_most="Solk"

Alab_most="Solk"

Alab_most="Solk"

Alab_most="Solk"

Plants were grown in the greenhouse at the University of Plants were grown in the greenhouse at the University of Plants were grown in the greenhouse at the University of Solis world with awns trimmed were collected at white, green and yellow anther stages (Fenton). Total RNA was prepared from each pool, equal quantities of all three RNA pools were combined, polyAn RNA was purified from the mixture, one primary unamplified GDNA ilbrary was made, and 1 million pfu were in tyro excised to give pBluescript SK(-) CDNA phagemids. These steps were performed in the TJ Close lab (Chol) at the University of California, Riverside.

Rhaganids were plated and picked at the Clemson University and Wing) Plasmid DNA preparations, DNA sequencing and sequence analysis were performed at CUGI (Wing, Yu, Frisch, Henry, Simmons, Oates, Rambo, Main). The sequencing and sequence analysis were performed at CUGI (Wing, Yu, Frisch, Henry, Simmons, Oates, Rambo, Main). The sequence has been trimmed to remove vector sequence and contains a minimum of 100 bases of phred value 20 or above. For more details on library preparation, and sequence analysis see http://www.genone.clemson.edu/projects/parley. To order this clone see http://www.genone.clemson.edu/projects/parley. To order this clone see http://www.genone.clemson.edu/projects/parley. To order this clone see http://www.genone.clemson.edu/projects/parley.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HVSMEG0017C03f Hordeum vulgare pre-anchesis spike EST 22-OCT-2001 HVSMEG0017C03f Hordeum vulgare pre-anchesis spike EST library HVCDNA0008 (white to yellow anther) Hordeum vulgare cDNA clone HVSMEG017C03f, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              see Close TJ, Wing R, Kleinhofs A, Wise R (2001)
Genetically and physically anchored EST resources for barley genomics. Barley Genetics Newsletter 31:29-30.
(http://wheat.pw.usda.gov/ggpages/bgn/31/cover.html)"
127 185 9 130 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10; Length 590;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 309.8; DB 10
Pred. No. 5.4e-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Hordeum vulgare"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Total hg bases = 105
Seq primer: AATTAACCCTCACTAAAGGG
High quality sequence stop: 509.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: rwing@clemson.edu
                                                                                                                                                                   BE455437.2 GI:13154758
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11.3%;
75.0%;
                                                                                                                                                                                                                                       Hordeum vulgare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BASE COUNT
                                                                       DEFINITION
                                                                                                                                                                                                                                       ORGANISM
     RESULT
BE455437
                                                                                                                                              ACCESSION
                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
```

/lab\_host="XLOLR"

g ŏ g ΩŸ q δ d ŏ

us-09-914-001-1.rst

```
946048003.y2 946 - tassel primordium prepared by Schmidt lab Zea mays CDNA, mRNA sequence.
BB475748.1 GI:9566239
                                                                                                                                                                          ó,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eukaryota, Viridiplantae, Streptophyta, Embryophyta, Tracheophyta, Spermatophyta, Magnollophyta, Lillopsida, Poales, Poaceae, PACC clade, Panicoideae, Andropogoneae, Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /dev_stage="just_after the transition from vegetative to inflorescence development"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1. .507
Acquaiss="sea mays"
Acutivar="0444"
Abb_xref="taxon:4577"
Acjone_lib="946 - tassel primordium prepared by Schmidt
/dev_stage="P7-p11 leaf"
/lab_host="E.coli XL1-Blue MFR'"
/note="Organ: shoot; Vector: Lambda zap; Hake lab cDNA
                                                                                                                                                                                                                                                                                                                                          2429 aggttataattcatccgactcaagcaaggtcctcactatccgggagaaacgcaaggttac 2488
                                                                                                                                                                                                                                                                           2489 agggettececgattactacegattgtttggeeegateaaggagaagtacatteaagteg 2548
                                                                                                                                                                                                                                                                                                                                                                                                               2609 tgggtgaatctgaggggagtgaccctctgtaccagctgcctccaagtttcacctctgttg 2668
                                                                                                                                                                                                                                                                                              418 AGGTTATAATTCATCCGACTCAAGCGTCCTCACTATCCGGGAGAACGCAAGGTTAC 359
                                                                                                                                                                         0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Maize ESTs from various cDNA libraries sequenced at Stanford
                                                                                                                                   Query Match 11.3%; Score 308; DB 9; Length 418; Best Local Similarity 100.0%; Pred. No. 1.1e-48; Matches 308; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              94304, USA
                                                                      88 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (1999)
Contact: Walbot V
Contact: Walbot V
Contact: Walbot V
Stanford University
855 California Ave, Palo Alto, CA 94.
7el: 650 723 2227
Fax: 650 725 8221
Enail: Walbot Getenford.
Plate: 946048 row: C column: 03.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="tassels"
                                                                    107 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 507)
Walbot, V.
                                                                        Ö
                                                    library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2729 ttgagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGAGCAG 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zea mays.
Zea mays
                                                                        ĸ
                                                                      92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
BE475748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
```

```
613 bp mRNA linear EST 31-JAN-2000 mays cDNA, mRNA sequence.
AM330561 GI:6826918
EST.
/note="Organ: tassels; Vector: HybrizAP; Site_1: EcoRI; Site_2: XhoI; George Chuck dissected immature tassels between 1mm and 3mm. Sharon Stanfield prepared the cDNA tibrary in HybrizAP. Sample insert size range was 350 bp to 3 Kb with a 1 Kb average."
                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zea mays
Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; PACC
clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .613
/organism="zea mays"
/orlitivar="W23"
/db_xref="taxon:4577"
/clone_lib="707 - Mixed adult tissues from Walbot lab (SK
                                                                                                                                                                                                                                                                                                                 2672
                                                                                                                                                                                                                                                         2433 tataattcatccgactcaagcaaggtcctcactatccgggagaacgcaaggttacaggg 2492
                                                                                                                                                                                                                                                                                                                                                                               tissue_type="tassel, kernel, silk, husk, root, leaf"
                                                                                                                                                                   Gaps
                                                                                                                                                                                                                 15 TATAATTCATCCGACTCAAGGGGTCCTCACTATCCGGGAGAAGGCAAGGGTACAGGG 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Maize ESTs from various cDNA libraries sequenced at Stanford
                                                                                                                                                                     ő
                                                                                                                                    Score 296; DB 10; Length 507;
Pred. No. 2.2e-46;
0; Mismatches 5; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           855 California Ave, Palo Alto, CA 94304, USA Tel: 650 723 2227
Fax: 650 725 8221
Email: walboctstanford.edu
Plate: 707029 row: A column: 05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Department of Biological Sciences
Stanford University
                                                                                                                                     Query Match 10.8%;
Best Local Similarity 98.4%;
Matches 299; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 613)
Walbot, V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Unpublished (1999)
Contact: Walbot V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zea mays.
                                                                             104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2733 gcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  315 GCAG 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AW330561/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                      ŏ
                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ŏ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BI435969 644 bp mRNA linear EST 21-AUG-2001
EST538730 cSTD Solanum tuberosum cDNA clone cSTD21E9 5' sequence,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spermatophyta; Magnollophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; Asteridae; euasterids 1; Solanales; Solanaceae; Solanum.

1 (bases 1 to 644)
van der Hoeven, R., Bezzerides, J., Ewing, E., Cho, J., Chiemingo, A., Bougit, O., Buell, C.R., Ronning, C., Tanksley, S. and Baker, B. Gonerations of Esys from dormant potato tubers (Dhpublished (2001)
Contact: Cathy Ronning
The Institute for Genomic Research
Fox. clone info: please contact Research Genetics, Libraries Division tell.1-800-711-6195, email cdna@tesgen.com
/dev_stage="adult"
/lab_host="bH108"
/note="organ: label, kernel, silk, husk, root, leaf;
/note="organ: site_1: BcoRI; cDNA library from fully
differentiated maize tissues from an active Mutator
plant. Tissue ratio is 4/2/1/1/1/1 (tassel, kernel, silk,
husk, root, leaf). Unidirectionally cloned."
                                                                                                                                                                                                                                                                                                 2432 ttataattcatccgactcaagcaagggtcctcactatccgggagaacgcaaggttacagg 2491
                                                                                                                                                                                                                                                                                                                                                                         gottccccgattactaccgattgtttggcccgatcaaggaggaagtacattcaagtcggga 2551
                                                                                                                                                                                                                                                                                                                                                                                                                                                       2552 acgoagtggotgtccctgttgcccgggcactgggctactgtctgggggcaagcctacctgg 2611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2672 gacgcactgcgggggcaggcgagggcctctctgttggcacccctgcaggggaggtagttg 2731
                                                                                                                                                                                                                                                                                                                    373 GACGAGCGGGGCGAGGCGCTCTCCTGTTGGCACCCCAGCAGGGAGGTAGTTG 314
                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                 Score 295.4; DB 9; Length 613; Pred. No. 3e-46; 0; Mismatches 6; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              post-harvest"

    . 644
    /organism="Solanum tuberosum"
    /cultivar="Kennebec"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="cSTD"
/tissue_type="dormant tuber"
/dev_stage="one month post-ha/lab_hoste="SOLR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /db_xref="taxon:4113"
/clone="cSTD21E9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mRNA sequence.
BI435969
BI435969.1 GI:15260659
                                                                                                                                                                                                                   10.8%;
98.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Seq primer: M13F-R
                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             potato.
Solanum tuberosum
                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2732 agcag 2736
                                                                                                                                         164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGCAG 309
                                                                                                                                                                                                                                                           299;
                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                             2492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              313
                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 1:
BI435969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhOI; This library targets genes expressed in dormant
tubers. This library was made from sections of dormant
tuber, avoiding the buds and epidermis. Tubers were stored
for one month post-harvest at 4oC. The tuber was peeled,
well away from the surface. Then it was chopped into 1-2
mm cubes and immediately frozen in liquid nitrogen. This
library is noted as P4 in Tanksley lab notebooks."
                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BI180003 694 bp mRNA linear EST 09-JUL-2001 EST520948 CSTE Solanum tuberosum cDNA clone CSTE21E10 5' sequence,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           potato.
Solanum tuberosum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                                                                                                  1608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1968
                                                                                                                                                                                                                                                                             1489 cacaaaagaaagatteteecaetgeetgigatgitgatgiteattigiggaggeecaeea 1548
                                                                                                                                                                                                                                                                                                                                                                                       ctcatggaaaatgtggtggacatactcaaatttgcggatggttacctaggaaaatatgct 1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ttgagctgccttgttgctatgaagtaccaagcgcggcttggaatgatggtggctggttgc 1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ctocctaagtatoctotgoccacctatgatgitgtagtacgiggaggagcccctaatgcc 1908
                                                                                                                                                                                                                        gaaccgattgataacttgagtgactgcccgcagaaaattagagaatttgtacaagaaggg 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cttcttggcgatgcaatttcagatttaccaaaggttcaaaatcaccagcctaacgatgtg 2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                    241 TTAATGGAGAACGTGGTGGACCTTGTCAAATTCTCCAATGGTTTCCTTGGGCGATATGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ttttcgcaatgtatggttgcatatgacgagacacaaaaaccatcctgaaaaagccttg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
0
                                                                                                                                                                  Length 644;
                                                                                                                                                                 Score 292; DB 10; Length 6
Pred. No. 1.4e-45;
0; Mismatches 220; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           atggagtatggtggttcccccaagaccgaattccagcgctacat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA sequence.
BI180003
BI180003.1 GI:14645814
                                                                                                                                                                 Query Match
Best Local Similarity 65.8%;
Matches 424; Conservative
                                                                                                                ø
                                                                                                              176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                     1549
                                                                                                                                                                                                                                                                                                                                                                                                                                               1669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1729
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2029
                                                                                                                                                                                                                          1429
                                                                                                                                                                                                                                                                                                                                                                                          1609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B1180003
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                             QQ
                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                        φ
```

```
And Laber 1991.

And Laber 1991.

Anote—Wetcor: pBluescript SK(-); Site_1: EcoRI; Site_2: Vissue supplied by Christian Bachem and Richard Vissue Copeartment of Plant Breeding, Wageningen University, The Netherlands). The CSTA libraries will attempt to capture the induction and initiation/initial growth of the tuber in an in vitro system as described in Bachem et al. (Plant Journal, 1996). Small microtubers develop from axillary buds attached to stem explants when placed on a high sucrose meddim (10%). Visible morphological changes occur synchronously at day five in the axillary buds. The first library, CSTA (1-20) consists of axillary buds harvested on days 1-3. This targets those genes involved in induction of the microtubers. The following libraries, CSTA (21-40) and CSTA (41-60), capture genes involved in tuber initiation and outgrowth. This library is noted as P3 in Tanksley lab notebooks."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
1 (bases I to 634)
van der Heoven, R., Bezzerides, J., Bachem, C., Visser, R., Cho, J.,
Chiemingo, A., Bougri, O., Buell, C.R., Ronning, C., Tanksley, S. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tatggtetgecacagtteaggatgegtgtgtteetetggggtgetetttetteeatggtg 1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1429 gaaccgattgataacttgagtgactgcccgcagaaaattagagaatttgtacaagaaggg 1488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1489 cacaaaagaaagattctcccactgcctggtgatgttgatgtcatttgtggaggcccacca 1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tgccaaggtatcagtgggtttaatcggtacagaaaccgtgatgagccactcaaagatgag 1608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1609 aaaaacaaaaatggtgactttcatggatattgtggcgtacttgaagcccaagtatgtt 1668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ttgagctgccttgttgctatgaagtaccaagcgcggcttggaatgatggtggctggttgc 1788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61 TICAAAGCAAATCTTTTGCCGTTGCCTGGTGATGTTGATGTTTGTATGCGGTGGACCACCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                   /tissue_type="axillary buds of stem explants; growing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Generation of ESTs from in vitro grown microtubers
Unpublished (2001)
Context: Cathy Rouning
The Institute for Genomic Research
For clone info: please contact Research Genetics, Libraries
Division tel 1-800-711-6195, email cdna@resgen.com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10.3%; Score 282.8; DB 10; Length 694; ilarity 65.7%; Pred. No. 7.9e-44; Conservative 0; Mismatches 222; Indels 1;
                                                                                                                                                                                                                                                                                                                      /organism="Solanum tuberosum"
/cultivar="Bintje"
/db_xxef="faxon:4113"
/clone="GSTEZIEIO"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /dev_stage="7, 8 and 10 days"
/lab_host="SOLR"
                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sink-tubers"
                                                                                                                                                                                                                                                               Seq primer: M13F-R
                                                                                                                                                                                                                                                                                                      .694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 192
                                                                                                Baker, B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         427;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1729
                                                                                                                  TITLE
JOURNAL
COMMENT
                          REFERENCE
                                                    AUTHORS
                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
```

```
/note="Organ: tassels; Vector: HybrizAP; Site_1: EcoRI; Site_2: XhoI; George Chuck dissected immature tassels between 1mm and 3mm. Sharon Stanffield prepared the cDNA tibrary in HybrizAP. Sample insert size range was 350 bp to 3 Kb with a 1 Kb average."
                                                                                                                                                                                                                                                                                                                                                                                                             BE345464 572 bp mRNA linear EST 17-JUL-2000 946035B01.x1 946 - tassel primordium prepared by Schmidt lab Zea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Zea. 1 (bases 1 to 572)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="tassels"
/dev_stage="just after the transition from vegetative to
inflorescence development"
/lab_host="XLOER"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:4577"
/clone_lib="946 - tassel primordium prepared by Schmidt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2451 agcaagggtcctcactatccgggagaacgcaaggttacagggcttccccgattactaccg 2510
                                                                                                                                                                                            1849 ctccctaagtatcctctgcccacctatgatgttgtagtagtggaggagccctaatgcc 1908
                                                                                                                  .909 ttttcgcaatgtatggttgcatatgacgagacacaaaaaccatccctgaaaaaagccttg 1968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       513
                                                                421 TTGCCACAATATCCATTGCCCACACATAAAGTTATTGTAAGGGGTGTTATTCCCGTAGAA 480
                                                                                                                                        361 TATGGTCTTCCACAATTTCGTATGCGTGTCTTCATGTTTGGTGCTCTTTCATCAGAGAAG 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Walbot,V.
Maize ESTS from various cDNA libraries sequenced at Stanford
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                            2029 atggagtatggtggttcccccaagaccgaattccagcgctacattcgact 2078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 572;
                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 278; DB 10;
Pred. No. 6.1e-43;
0; Mismatches 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Department of Biological Sciences
Stanford University
855 California Ave, Palo Alto, CA 94304, 1
Tel: 650 723 2227
Fax: 650 728 8221
Email: walbot@stanford.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: walbot@stanford.edu
Plate: 946035 row: B column: 01.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Zea mays"
/cultivar="OH43"
                                                                                                                                                                                                                                                                                                                                                                                                                                                    mays cDNA, mRNA sequence.
BE345464
BE345464.1 GI:9254996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 10.2%;
Best Local Similarity 98.3%;
Matches 281; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            University
Unpublished (1999)
Contact: Walbot V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Zea mays.
Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                BE345464/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                       QQ
                                                                                                                                                                                                δy
                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                            δ
                                      ŏ
                                                                           οp
                                                                                                                  Q
```

```
Zea mays.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 15
AI065720/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                       2637
                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                          Οy
                                                     ò
                                                                                                                         ò
                                                                                                                                                        g
                                                                                                                                                                                              à
                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota a salitudi

Eukaryota viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta: Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae

1 (bases 1 to 493)

1 (bases 1 to 493)

S Anderson, O.A. Appelas, R., Balley, P., Blake, T., Close, T., Cloutier

S., Dubcovsky, J., Feuillet, C., Gale, M., Graner, A., Gustafson, P.,

Herrmann, R.G., Holton, T., Jacquemin, J.M., Jia, J., Joudrier, P.,

Langitidge, P., Lazo, G. R., Lin, J.J., Mocdire, P., Oghlara, Y.,

Pecchioni, N., Qualset, C., Schuch, W., Selvaraj, G., Shariflou, M.,

Sorrells, M., Warburton, M. and Wenzel, G., Shariflou, M.,

Sorrells, M., Warburton, M. and Wenzel, G., Shariflou, M.,

Sorrells, M., Warburton, Species of the Triticeae

Unpublished (2000)

Kihara Institute for Biological Research, Yokohama City University

Maloka-Oho 641-12. Totsuka-ku, Yokohama 244-0813, JAPAN

Tel: 81 45 820 1903
                                                                                                                                                                                                                                                                                                              493 bp mRNA linear EST 24-JUL-2000 MGG20.A11R990620 ITEC MGG What Spikelet Library Triticum aestivum EB417348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone="MuG020.A11"
/clone_ib="TPEC MUG Wheat Spikelet Library"
/tissue_type="young spikelets"
/dev_stage="Feekes" scale 6-7"
/note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; M13 Reverse sequencing primer used. 1.2 Kbp average insart size."
125 c 154 g 111 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
2571 tgcccgggcactgggctactgtctggggcaagcctacctgggtgaatctgaggggagtga 2630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2277 agaaatcgagcgtgtgaaactttcatctgggaaaccactggttcctgactatgcaatgtc 2336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 AGAAGTTGAGCGTGTCTACCTCAAGTCCGGCAAACCTTTGGTTCCTGACTATGCAATGTC 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 10; Length 493;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9.9%; Score 271.2; DB 10; Length 74.3%; Pred. No. 1.2e-41; tive 0; Mismatches 118; Indels
                                                                                                                                                                                                              2691 gagggcetetectgttggcaccectgcaggggaggtagttgagcag 2736
                                                                                                                                                                                                                                 332 GAGGGCCTCTCCTGTTGGCACCCCTGCAGGGAGGTAGTTGAGCAG 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Email: ogihara@yokohama-cu.ac.jp
International Triticeae EST Cooperative (ITEC)
http://wheat.pw.usda.gov/genome.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Triticum aestivum"
/cultivar="Norin 26"
/db_xref="taxon:4565"
                                                                                                                                                                                                                                                                                                                                                                                                       BE417348.1 GI:9415194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches 342; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Triticum aestivum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1. .493
                                                                                                                                                                                                                                                                                                                                                                                                                        EST.
bread wheat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                  RESULT 14
BE417348
                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                     ò
                                                                                                    g
                                                                                                                                          ò
                                                                                                                                                                           g
                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                            OD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       õ
```

```
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Cade; Panfooldeer; Andropogoneae; Zea.

E clade; Panfooldeer; Andropogoneae; Zea.

E (bases 1 to 368)

S Schutz,K., de la Bastide,M., Gnoj,L., Habermann,K., Huang,E.N., Parnell,L.D., Dedhla,N., Martienssen,R. and McCombie,W.R.

Expressed sequence tags from Z. mays

Unpublished (1988)

Contact: W. Richard McCombie

Lita Annenberg Hazen Genome Sequencing Center

Cold Spring Hazen Genome Sequencing Center

Cold Spring Harbor Laboratory

PO Box 100, Cold Spring Harbor, NY 11724, USA

Tel: 516 367 8884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="rexo:4577"
/db_xref="rexo:4577"
/clone_ilb="maize inflorescence immature ear library"
/sex="female"
/fissue_type="timmature ear"
/fissue_type="timmature ear"
/fissue_type="timmature ear"
/fissue_type="timmature ear"
/fissue_type="timmature ear"
/note="vector: pButEsCRIPT SK+ (X52325); Site_l: XhoI;
Site_2: EcoRI; This library is described in Schmidt, Hake, et al., (1991) Plant Cell 5:729-77; CONMS are
directionally cloned into the XhoI and EcoRI sites; XhoI is near the polyA tail. Most reads from this library are
3' in direction. Additional information on this library as well as ftp access to all sequences can be found at http://www.cshl.org/maizegenome"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        368 bp mRNA linear EST 24-JUL-1998 ag92b08.x1 maize inflorescence immature ear library Zea mays CDNA A1065720
                                                                                         2456
                                                                                                                                                                                                                                                                                                                                            2457 ggtcctcactatccgggagaacgcaaggttacagggcttccccgattactaccgattgtt 2516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2577 ggcactgggctactgtctggggcaagcctacctgggtgaatctgaggggagtgacctct 2636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gtaccagetgeetecaagitteacetetgitggaggaegeactgeggggeaggegaggge 2696
                                                                                         301 GGCACTGGGCTACTTTTTGGGCCCAGCGTACCAGGGCGAGGTGGATGCGGGGGTATGATGC 360
361 GUTGITIGITCITCCIGACAGCITCACCAACATCGGACAGACCGGTGCGAGGCCAAGGGC 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2697 ctctcctgttggcaccctgcaggggaggtagttgagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: mccomble@cshl.org
Plate: ag92 row: b column: 08
Seq primer: M13 forward universal -21
High quality sequence stop: 368.
Location/Qualifiers
c /organism="Zea mays"
/cultivar="B73"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AI065720.1 GI:3341127
```

	0;											
	i; 0; Gaps	jtt 2516	TT 309	2cg 2576	11 20G 249	ct 2636	CT 189	1gc 2696	3GC 129			
	368; 0;	cgatto	CGATTC	gttgc	GTTGCC	gaccct	GACCC	gegage	GCGAGG			
	Length 368; Indels 0	ggtcctcactatccgggagaacgcaaggttacagggcttccccgattactaccgattgtt 2516	ATTACTAC	2517 tggcccgatcaaggagaagtacattcaagtcgggaacgcagtggctgtccctgttgcccg	CIGICCCI	ggcactgggctactgtctggggcaagcctacctgggtgaatctgaggggagtgacctct 2636	AGGGGAGT	gtaccagctgcctccaagtttcacctctgttggaggacgcactgcgggggcaggcgaggg	CGGGGCAG			
ų	Score 268.4; DB 9; Pred. No. 3.7e-41; ; Mismatches 1;	cttccccg	CTTCCCTG	cgcagtgg	CGCAGTGG	tgaatctg	TGAATCTG	acgcactg	ACGCACTG			
65	Score 268.4; DB 9 Pred. No. 3.7e-41; ; Mismatches 1	acaggg	ACAGGG	cgggaa	CGGGAA	cctggg	CCTGGG	tggagg	TGGAGG	2726	66 :	0,
101 g	0	caaggtt	CAAGGTT	ttcaagt	TTCAAGI	aagccta	AAGCCT	cctctgt	CCTCTG	2697 ctctcctgttggcaccctgcagggaggt 2726	CTCTCCTGTTGGCACCCCTGCAGGGGAGGT	Search completed: July 15, 2002, 11:32:40 Job time: 11032 sec
118 c	9.8%; 99.6%; tive	gagaacg	AGAACG	aagtaca	AAGTACA	2tggggc	TGGGGC	agtttca	AGTTTCA	ctgcag	CTGCAG	2002,
	ď	atccgg	ATCCGG	aaggagg	AAGGAG	cactgt	ACTGT	ctcca	CTCCA	gcacc	3GCACC	Ly 15,
84 a	imilar; ; Cons	ctcact	TCACT	ccgatca	CCGATC	stgggci	CTGGGC	cagetge	CAGCTG	sctgtt	CCTGTT	ed: Ju 2 sec
Ę	Query Match Best Local Similarity 99. Matches 269; Conservative	7 ggtc	3 GGTCC	7 tggc	3 TGGC	) ggcac	3 GGCAC	7 gtace	3 GTAC	7 ctct	S CTCT(	omplet( : 1103;
BASE COUNT ORIGIN	Query Match Best Local Matches 26	2457	368	2517	306	2577	248	2637	188	2697	128	rch co
BAE ORJ	<b>У</b> ш <u>г</u>	οy	qq	٥y	g	δλ	g	δλ	g	Qy	qq	Sea

,		•
		٠

**k** )

Sequence:

Run on:

Searched:

```
AF243043 2796 bp mRNA linear PLN 21-FEB-2001 Zea mays DNA cytosine methyltransferase MET2a (met2a) mRNA, complete cds.
AF243043 GI:13021689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Y13901 Homo sapien
AC084389 Mus muscu
AL589701 Mouse DNA
AC016961 Homo sapi
                                         AC069344 Oryza sat
AC108443 Oryza sat
AC108443 Oryza sat
AC088435 Oryza sat
AC088435 Oryza sat
AC01711 Arabidops
AL01711 Arabidops
AL01711 Arabidops
AC01289 Arabidops
AF03936 Arabidops
AF03936 Arabidops
AF03936 Arabidops
AF03937 Arabidops
AF03999 Arabidops
AF03949 Arabidops
AF0364746 Mus muscu
AC06785 Homo sapi
AC06785 Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicolaea; Andropogoneae; Zea.

1 (bases 1 to 2796)

Papa.C., M., Muszynski, M.G., Springer, N.M. and Kaeppler, S.M.
Maize chromomethylase, Zea Methyltransferase2a (zmet2a), is required for CpNpG Methylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Papa.C.M., Muszynski,M.G., Springer,N.M. and Kaeppler,S.M.
Direct Submission
Submitted (08-MAR-2000) Agronomy and Plant Genetics, University of
Minnesota, 1991 Buford Circle, St. Paul, MN 55108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                         M10668 Mouse DNA w
                      Arabidops
Arabidops
Oryza sat
Oryza sat
Triticum
Arabidops
Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ac068013 Homo sapi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                       ATHMETASE
AC073495
AC073495
AC005882
AC005882
AC067884
AC067854
AC06018
AL645746
AC069785
                                                                                                                                                                                                                                                                                                                                                                                                                                             AC099959
MUSIR3E2
AC068013
HSFGFR4G
AC084389
                                                                                                                                                                                                                                                       AF039371
AF039372
ATU53501
F23A5
AF433679
AF039375
AR083152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 2796)
        .7 3156
.4 2232
.3 2531
.5 174752
.9 127982
.4 85721
.3 410
                                                                             4614
4896
4920
9642
9643
37570
109694
4400
1931
                                                                                                                                                                                                                                                                                                                                      .1 206497
.1 219200
.1 202010
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.1 235985
                                                                                                                                                                                                                                                                                                                                                                                                                                                         451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Zea mays.
Zea mays
88
88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
AF243043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                               July 15, 2002, 08:28:03; search time 4902.45 Seconds (without alignments) 11678.855 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                       US-09-914-001-1
2736
1 atggcgccgagctccccgtc.....caggggaggtagttgagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
                                                                                                                                                                                                                                3595312
       GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd.
                                                                                                                                                                                                        1797656 seqs, 10463268293 residues
                                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUMMARIES
                                                                                                                                                                                                                                                                                      Post-processing: Minimum Match 10%
Maximum Match 100%
Listing first 45 summaries
                                                    OM nucleic - nucleic search, using sw model
                                                                                                                                                                     IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    em_htg_inv:*
em_htg_other:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em_htgo_inv:*
                                                                                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          em_htg_hum:*
                                                                                                                                                                                                                                                                                                                            GenEmbl:*
1: 9b_ba:*
1: 9b_htg:*
1: 9b_om:*
1: 9b_om:*
1: 9b_om:*
1: 9b_ph:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Score Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gb_sts:*
gb_sy:*
gb_n:*
gb_vi:*
em_bu::*
em_hum::*
em_hum::*
em_nin:*
em_nin:*
em_nin:*
em_nin:*
em_nin:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             em_ov:*
em_pat:*
em_ph:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           em_ro:*
em_sts:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   em_un:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 em_pl:*
                                                                                                                                      Perfect score:
                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                      Database :
```

Ş N Result

```
571
                                                                                                                     811
                                                                                                                                           871
                                                                                                                                                                  931
                                                                                                                                                                                                     1021
                                                                                                                                                                                                                1051
                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                      1111
                                                                                                                                                                                                                                                  1141
                                                                                                                                                                                                                                                            1171
                                                                                                                                                                                                                                                                         1201
                                                                                                                                                                                                                                                                                    1231
                                                                                                                                                                                                                                                                                                1261
                                                                                                                                                                                                                                                                                                           1291
                                                                                                                                                                                                                                                                                                                      1321
                                                                                                                                                                                                                                                                                                                                 1351
                                                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                         1411
                                                                                                                                                                                                                                                                                                                                                                    1441
                                                                                                                                                                                                                                                                                                                                                                               1471
                                                                                                                                                                                                                                                                                                                                                                                                      1531
                                                                                                                                                                                                                                                                                                                                                                                                                 1561
                                                                                                                                                                                                                                                                                                                                                                                                                             1591
              541
                                    601
                                                631
                                                            199
                                                                       691
                                                                                  721
                                                                                              751
                                                                                                         781
                                                                                                                                 841
                                                                                                                                                       901
                                                                                                                                                                              196
                                                                                                                                                                                         991
                                                                                                                                                                                                                                                                                                                                                                                           1501
             ò
                        qq
                                    δý
                                             g
                                                          ολ
                                                                     g
                                                                                 οy
                                                                                            임
                                                                                                       οy
                                                                                                                  Db
                                                                                                                              δý
                                                                                                                                         g
                                                                                                                                                       òγ
                                                                                                                                                                q
                                                                                                                                                                           δ
                                                                                                                                                                                       g
                                                                                                                                                                                                 90
90
90
90
                                                                                                                                                                                                                                                07
07
09
                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                        qq
                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                οy
                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                      ö
                                                                                                                                                                                                                                                       180
                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                       330
                                                                                                                                                                                                                                                                                                                                                                          420
                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                       540
                                                                                                                                                                                                                                                                                          210
                                                                                                                                                                                                                                                                                                                                                    360
                                                                                                                                                                                                                                                                                                                                                              390
                                                                                                                                                                                                                                           90
                                                                                                                                                                                                                                9
                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                              gtggggagaaggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagc
                                                                                                                                                                                                                                                                                                                                                                                                        CCGTTCCCCCCCCACGAGGCCCCAACTGCCCCAAGCCTACGCCGCAGCACTGCC
                                                                                                                                                                                                                                 1 atggcgccgagctccccgtccgccgccgcctacacgcgtctctgggcggaagcgcgcc
                                                                                                                                                                                                                                       gacgtgtgcgccgaggagcccgacgaggagttggccatgggcgaggaggaggagg
                                                                                                                                                                                                                                                                                                                                   gagcaggccatgcaggaggaggtggttgcggtcgcgggggtcacccgggaagaagagg
                                                                                                                                                                                                                                                                                                                                                                                                 cctgttgccgcggacgaggcgcagcaactggcccaagcgctacggccgcagcactgcc
                                                                                                                                                                                                                                                                                                                                                                                                                       gcaaagaaaccggatgaggaggaggaggcccaaggccagatgtcactaccggagcgctaag
                                                                                                                                                                                                                                                                                                                                                                                    GTGGGGAGAAGGAACGCCGCCGCCGCTGGCGACCACGAGCCGGAGTTCATCGGCAGC
                                                                       /product="DNA cytosine methyltransferase MET2a"
/protein_id="AAK11516.1"
/db_xref="GI:13021690"
                                                                                                                                                                                                                      ö
                                                                                                                                                                                                          Length 2796;
                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                           .;
8
                                                                                                                                                                                                                     ö
                                                            /note="Zmet2a; chromomethylase
                                                                                                                                                                                                           DB
                                                                                                                                                                                                         100.0%; Score 2736;
llarity 100.0%; Pred. No. 0;
Conservative 0; Mismatches
Location/Qualifiers
1. 2796
/organism="Zea mays"
/db_xref="taxon:4577"
/chromosome="10"
/ note="genotype: Mol7"
1. 2796
/gene="met2a"
31. 2769
                                                                  /codon_start=1
                                               31. .2769
/gene="met2a"
                                                                                                                                                                                                                Similarity
                                                                                                                                                                                     ø
                                                                                                                                                                                   701
                                                                                                                                                                                                           Query Match
Best Local Si
Matches 2736,
         source
                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                            31
                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                  91
                                                                                                                                                                                                                                                                                                                                       271
                                                                                                                                                                                                                                                                                                                                                                                     391
                                      gene
                                                                                                                                                                                                                                                                              121
                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                211
                                                                                                                                                                                                                                                                                                                                                   301
                                                                                                                                                                                                                                                                                                                                                              331
                                                                                                                                                                                                                                                                                                                                                                          361
                                                                                                                                                                                                                                                                                                                                                                                                421
                                                                                                                                                                                                                                                                                                                                                                                                           451
                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                CDS
   FEATURES
                                                                                                                                                                                                                                            a
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                         q
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                    οp
                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                              οy
                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                         δý
                                                                                                                                                                                                                                                                                                                                                                                                ά
                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

1320 1470 1080 1110 1140 1170 1260 1380 1410 1440 1500 1560 1620 1020 1050 1200 1230 1290 960 999 690 720 750 780 810 840 870 900 930 990 009 630 570 gcagattacattggccgcattactgaatttttgaggggactgaccagtgtcactattt geatattetacatttgetaatatetegtetgaaaatgggeagteaggeagtgataceget togggtatttettetgatgatgtggatetggagaegteatetagtatgeeaaggaggaea tgccaaagtttaaaatataatcatccacagactgaggtgcgaaatgagaaagccgatgag GCAAAGAAACCGGATGAGGAGGAAGAGCTCAAGGCCAGATGTCACTACCGGAGCGCTAAG gtggacaacgtcgtctactgcctcggggatgacgtctatgtcaaggctggagaaaacgag GTGGACAACGTCGTCTACTGCCTCGGGGATGACGTCTATGTCAAGGCTGGAGAAAACGAG TCGGGTATTTCTTCTGATGATGTGGATCTGGAGACGTCATCTAGTATGCCAACGAGGACA gcaaccettettgatetgtattetggetgtgggggggatgtetaetggtttgettgggt tcaaatttagcaagctcagaggatcaagcggatgaagacagccctcttgacaaggacgaa agtgggtttaatcggtacagaaaccgtgatgagccactcaaagatgagaaaaacaa

```
2100
                                                                                                                                                                      ttccgcgacctaaagggcgtgagggttggagcaaacaatattgttgagtgggatccagaa 2280
                                                                                                                                                                                                                     ctcactatccgggagaacgcaaggttacagggcttccccgattactaccgattgtttggc 2520
                                                              cagttcaggatgcgtgttcctctggggtgctctttcttccatggtgctcctaagtat 1860
                                                                                                        atggttgcatatgacgagacacaaaaaccatccctgaaaaaagccttgcttcttggcgat 1980
                                                                                                                                                                                                                                                                              ctgggctactgtctggggcaagcctacctgggtgaatctgaggggagtgaccctctgtac
                                                                                                                                                                                                                                                                                                                                                  gtggtggacatactcaaatttgcggatggttacctaggaaaatatgctttgagctgcctt
                          ggttcccccaagaccgaattccagcgctacattcgactcagtcgtaaagacatgttggat
                                                                                                                                                       cggcttaacaacgatgattatgagcgggttcaacagattcctgtcaagaagggagccaac
                                                                                                                 1951
                                                                                                                                                2041
                                                                                                                                                                                                                                                                                                  2461
                                                                                                                                                                                                                                                                                                            2491
                                                                                                                                                                                                                                                                                                                                                                           2671
         1651
                     1681
                                         1741
                                                   1771
                                                                       1831
                                                                                  1861
                                                                                             1891
                                                                                                       1921
                                                                                                                                                           2071
                                                                                                                                                                      2101
                                                                                                                                                                                2131
                                                                                                                                                                                           2161
                                                                                                                                                                                                     2191
                                                                                                                                                                                                               2221
                                                                                                                                                                                                                                                                             2401
                                                                                                                                                                                                                                                                                       2431
                                                                                                                                                                                                                                                                                                                       2521
                                                                                                                                                                                                                                                                                                                                 2551
                                                                                                                                                                                                                                                                                                                                            2581
                                                                                                                                                                                                                                                                                                                                                      2611
                                                                                                                                                                                                                                                                                                                                                                 2641
                                                              1801
                                                                                                                                                                                                                                                                  QQ
                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                               g
                                                                                                                                                                                                  g
                                                                                                                                                                                                               δŏ
                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                  δy
                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                 ö
ò
         g
                   QΥ
                             οq
                                        ò
                                                 g
                                                             δ
                                                                     g
                                                                                ΟŽ
                                                                                           g
                                                                                                     δ
                                                                                                                g
                                                                                                                            δy
                                                                                                                                    엄
                                                                                                                                                 δy
                                                                                                                                                          Dp
                                                                                                                                                                   ŏ
                                                                                                                                                                                          ò
```

```
YGGSPKTEFQRYIRLGRKÖMLDWSFGEEAGPDEGKLLDHQPLRLNNDDYERVKOIPVK
KGANERDLKGVKANNVVEWDPERPENYLLSSRCPLVPDFAMSFIRGESLRFFGRUM
DOTVPTVVTRAEPHOYTLHPTQARVLFIRENARLQGFDDYRLFGPIREKYIOVGNA
VAVPVARALGYCLGQAYLGESDGSQPLYQLPASFTSVGRTAVQANAASVGTPAGEVVE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                             PLN 10-MAR-2001
                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                          Direct Submission
Submitted (13-FEB-2001) Agronomy, University of Wisconsin, 1575
Linden Dr. Madison, WI 53706, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57 ATGGGGCCAAGCTCCCCGTCATCGCTAAGGCCCACGCGCGCCCCCGGCGGAAGCTCCCCTT11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 gccaaggcogaggagatccaccagaacaaggaggaggaggaggaggtogcggggggttc 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 atggcgccgagctccccgtcacccgccgcctacacgcgtctctgggcggaagcgcgcc
                                                                                                                                                                                                                                               Muszynski, M.G. and Kaeppler, S.M. Methyltransferase 2 (Zmet2) is r
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 8; Length 3156;
                                                                              Zea mays chromomethylase (Zmet5) mRNA, complete cds. AY027539
AY027539.1 GI:13272198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 2264; DB 8; Length 3:
Pred. No. 0;
0; Mismatches 235; Indels
                                                                                                                                                                                                                                                                         for CpNpG Methylation
Unpublished
2 (bases 1 to 3156)
Springer, N.M., Papa, C.M. and Kaeppler, S.M.
772
                                                                                                                                                                                                                                                                                                                                                                                 1. 3156
/organism="Zea mays"
/db_trref="textor:4577"
/chromosome="2"
/note="genotype: Mol7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 გ
                                                                                                                                                                                                                                 1 (bases 1 to 3156)
Papa,C.M., Springer,N.M.,
Maize chromomethylase Zea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="Zmet5"
57. .2804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .3156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                989
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                Zea mays.
Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Simil
Matches 2492; C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                       ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                    ~
                                                                                                           DEFINITION
                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                      JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                              TITLE
                                                                             AY027539
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                        EATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            à
    ð
```

176 180	236 231	י סי ויי	345 416	405	465 533	525 593	585 653	645 713	705	765 833	825 893	885 953	945 1013	1005	1065 1133	1125 1193	1185 1253
GCCATGGCCGAGGAGTCCACCAGAACCAGGAGGAGGAGGAGGAGGTTGTGGCTGCGTCC tccgccaagcgcaacgcaaggcatcttccgggaagaagaccaagtcgccccaag	CGCCAAGCCCAAGCCGCGCGTCTTCGGGAAGAAGCCCCAAGCCCAAGCCCAA GGCCCAA 	professional descriptions of the professional descriptions of the professional description des	ggaggccgaggagaggccatgcaggaggaggtggttgcggtcgcggggggtca 	cccgggaagaagaggtggggagaaggaacgccgccgccgctggcgaccacgagccg 	gagttcatcggcagccctgttgccgcggacgagcgagcagcagcagcagcgctac	ggccgcagcactgccgcaaagaaaccggatgaggaggaagagctcaaggccagatgtcac 	taccggagcgctaaggtggacaacgtcgtctactgcctcggggatgacgtctatgtcaag	gctggagaaaacgaggcagattacattggccgcattactgaattttttgaggggactgac 	cagtgtcactattttacttgccgttggttcttccgagcagaggacacggttatcaattct 	ttggtgtccataagtgtggatggccacaagcatgaccctagacgtgttttctttc	gaaaagaacgacaatgtgcttgattgcattatctccaaggtcaagatagtccatgttgat 	ccaaatatggatccaaaagccaaggttcagctgatagagagttgcgacctatactatgac 	atgtettaetetgttgeatattetaeatttgetaatatetegtetgaaaatgggeagtea 	ggcagtgataccgcttcgggtatttcttctgatgatgtggatctggagacgtcatctagt 	atgccaacgaggacagcaaccttcttgatctgtattctggctgtgggggcatgtctact	ggtctttgcttgggtgcagctcttctggcttgaaacttgaaactcgatgggctgttgat 	ttcaacagttttgcgtgccaaagtttaaaatataatcatcacagactgaggtgcgaaat 
117	177	9 9	291	346	406	466	526 594	586 654	646	706	766	826	886 954	946 1014	1006	1066	1126
oy Oy	do oy	3 6 8	Oy Dp	Oy Dp	60 00	Qy Dp	Oy Dp	Qy Dp	Qy Dp	Oy Dp	Oy Dp	oy Op	Oy Dp	6 G	63 13 13 13 13 13 13 13 13 13 13 13 13 13	Oy Db	Oy Dp

gaagggcacaaaagaaagattctcccactgcctggtgatgttgatgtcatttgtggaggc 1542 gagaaagccgatgagtttcttgccctccttaaggaatgggcagttctatgcaaaaatat 1245 cctcttgacaaggacgaatttgttgtagagaagcttgtcgggatatgttatggtggcagt gacagggaaaatggcatctatttaaggtccagtgggaaggatacggccctgaggaggat ggttgctatggtctgccacagttcaggatgcgtgtgttcctctggggtgctcttcttcc aatgoottttogoaatgtatggttgcatatgacgagacacaaaaaccatcootgaaaaaa cgtaaagacatgttggattggtccttcggtgagggggctggtccagatgaaggcaagctc 97 97 9. 20. 0y 0b 0b 9 9 9 0y 0b Q D O.Y Oy Dp oy Dp QQ g O. D. Q D δ q Qγ ŏ g δ

```
/product="chromomethylase"
/protein_id="AAB95486.1"
/db_xref="G1.2766715"
/translation="QRAEPEGDLCRAGKPVSVVESMIRWPHRYPSKKTKLEAATKGDK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLN 24-AUG-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                            2622
                                                                                                                                                                                                                                                                                                                                                    2682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF039365 Arabidopsis arenosa isolate Care-1(9509) chromomethylase (CMT1) mRNA, partial cds.
AF039365.1 GI:2766714
                                                                                                                                               2510
                                                                                                                                                                                                       2570
                                                                                                                                                                                                                                                   2747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (19-DEC-1997) HHMI, Fred Hutchinson Cancer Research Center, 1100 Fairview Ave. N (Al-162), Seattle, WA 98109-1024, Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ļ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 2232)
Henkeff,S. and Comai,L.
A DNA methyltransferase homolog with a chromodomain exists
multiple polymorphic forms in Arabidopsis
Genetics 149 (1), 307-318 (1998)
GTCCCTGTTGCACGGGCACTGGGCTACTGTCTGGGTCAAGCCTACCTGGGTGAATCTGAC
                                                                                                                                                                                                                                                                                                                                                  gggagtgaccctctgtaccagctgccccaagttcacctctgttggaggacgcactgcg
                                                                                                                                                                                                                                                                                                                                                                  2691 GGGAGTCAGCCTGTACCAGCTGCCTGCAAGTTTACCTCTGT---GGGGCGAACCGCG
                                                            gactatgcaatgtcattcatcaagggcaaatcactcaagccgtttgggcgcctgtggtgg
                                                                                                                   gacgagacagttcctacagttgtaaccagagcagagcctcacaaccaggttataattcat
                                                                                                                                    ccgactcaagcaagggtcctcactatccgggagaacgcaaggttacagggcttccccgat
                                                                                                                                                                                            tactaccgattgtttggcccgatcaaggagaagtacattcaagtcgggaacgcagtggct
                                                                                                                                                                                                                                                                                            gtecetgttgeeegggeactgggetactgtetggggeaageetacetgggtgaatetgag
                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Arabidopsis arenosa"
/isolate="Care-1(9509)"
/db_xref="taxon:38785"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /allele="Care-1"
<1. .>2232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2 (bases 1 to 2232)
Henikoff, S. and Comai, L.
Direct Submission
Submitted (19-DEC-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="CMT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="CMT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis arenosa.
Arabidopsis arenosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .>2232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9584105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                          2323
                                                                                                                                            2451
                                                                                                                                                                          2443
                                                                                                                                                                                                                                                              2571
                                                                                                                                                                                                                                                                                           2563
                                                                                                                                                                                                                                                                                                                       2631
                                                                                                                                                                                                                                                                                                                                                    2623
                                                                                                                                                                                                                                                                                                                                                                                                                                         2748
                                                                                                                 2383
                                                                                                                                                                                                                                  2503
                                                                                                                                                                                                                                                                                                                                                                                                             2683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
AF039365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                              q
 ð
                              g
                                                        ò
                                                                                   g
                                                                                                                 δy
                                                                                                                                                                         δ
                                                                                                                                                                                                    g
                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                             음
                                                                                                                                                                                                                                                                                       δy
                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                             ò
```

```
DPKGTGEKTLHLKVRWKGYSPKYDTWEPYSGLGNCKEKLKEYYDGFKSHLLPLPGTY
YSVCGGPPCOGISGYNRFRNRQAPLEDKKNQQLLVFLDIIDFLKBSYYLMBNVDDLR
FSKGYLARHAVDSYSVAMNYQHLGWRGSYGLPQNTRNFRLMAAQPTEKLPYPLPT
HEVEKKYNTPKEFEDLQVGLIOKELLQLDANALTLADAISDLPWTNSEANUYRNYDA
ARTDPENTISLKRSETLLPVCGGDPARRLFDHHPLELRDDDLERISTIFKKGANFR
DMFGYLVHNKAQLNLRYKRAKLKSGKNVYPDYAYSFIKGKSKRFFGRLWMDEIVNTY
VTRABPHNQVILHPWQERVLSYRRAKLKGGFPDCXKLCGSIKEKITQVGRANPVGY
              WFYRPDDTLIERFAELVQKKRVFLSNVEDDNPLTCIYSKVNIAKVPLPKITSRIEQRV
IPPCDYYYDMKYEVPYLNLTSADDDSAASSTLSSDSASNCFETLHKDEKFLLDLYSGC
GAMSTGFCMGASIAGVKLITKWSVDINKFACDSFRHNHPETEVRNEAAEDFLILLKEW
                                                                       KRLCERFSLISSTEPMESISELEDEESDENDDIDEASTDMELSAGEFEVEKFVGIVFG
KEKIKLAKRHYEQALVDGVLINLNDDVYVTHATGKLNFIGKVIEMFEADDGVPYCRIR
                                                                                                                                                                                                                                                                                                                                                         10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gataccgcttcgggtatttcttctgatgatgtggatctggagacgtcatctagtatgcca 1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1012 acgaggacagcaaccettettgatetgtattetggetgtgggggggatgtetactggtett 1071
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1072 tgcttgggtgcagctctttctggcttgaaacttgaaactcgatgggctgttgatttcaac 1131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            agttttgcgtgccaaagtttaaaatataatcatccacagactgaggtgcgaaatgagaaa 1191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       675
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        735
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            855
                                                                                                                                                                                                                                                                                                                                                                                       478 geogeaaagaaaeceggatgaggaaggaggaageteaag---geoagatgteactaeeggage 534
                                                                                                                                                                                                                                                                                                                                                                                                                  594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----TGCCGAACTTGTGCAAAAAAAGGGGTGTTTCTATCAAATGTTGAGGAC 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        892 tactctgttgcatattctacatttgctaatatctcgtctgaaaatgggcagtcaggcagt 951
                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       172 GCTTTGGTTGATGGAGTTCTCATCAACCTCAATGACGATGTTTACGTCACGCATGCTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       655 tattttacttgccgttggttcttccgagcagaggacacggttatcaattctttggtgtcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     595 aacgaggcagattacattggccgcattactgaattttttgaggggactgaccagtgtcac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       775 gacaatgtgcttgattgcattatctccaaggtcaagatagtccatgt---tgatccaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gccgatgagtttcttgccctccttaaggaatgggcagttctatgcaaaaaatatgtcc--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   535 gctaaggtggacaacgtcgtctactgcctcggggatgacgtctatgtcaaggctggagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                232 GGGAAGCTGAATTTCATTGGAAAGTTATTGAAATGTTCGAAGCTGATGGGGGTGCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            292 TACTGTCGCATTCGATGGTTTTACAGACCAGATGATACTTTGATAGAAGATT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                atggatccaaaagccaaggctcagctgatagagagttgcgacctatactatgacatgtct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          514 TACGAAGIGCCATATCTGAATITAACAAGIGCAGATGAIGATAGIG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        676 IGCAIGGGAGCTICCAIAGCAGGAGIAAAATIGAITACGAAAIGGICIGIGGAIAIAAAI
                                                                                                                                                                                                                                                                                                              Score 450; DB 8; Length 2232;
Pred. No. 4.1e-65;
0; Mismatches 880; Indels 105;
                                                                                                                                                                                                                                         ų
                                                                                                                                                                                                                                         598
                                                                                                                                                                                                                                       533 g
                                                                                                                                                                                                                                                                                                                  16.4%;
54.6%;
                                                                                                                                                                                                                                         419 c
                                                                                                                                                                                                                                                                                                                                                       Matches 1183; Conservative
                                                                                                                                                                                                                         ALGY
                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                             ๙
                                                                                                                                                                                                                                         682
                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                         COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          961
                                                                                                                                                                                                                                       BASE CO
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QΩ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
```

```
atttcagatttaccaaaggttcaaaatcaccagcctaacgatgtgatgaggt---atggt 2040
                                                                                                                                                                                                                                                                                                                                1216 GGCTATAACCGGTTTAGAAACAAACAAGCACCGCTTGAGGATAAGAAAACCAGCAACTT 1275
                                                                                                                                                                                                                                                                                                                                                                                                               1276 TTGGTGTTTTTAGACATCATTGACTTCCTCAAGCCAAGTTACGTGCTTATGGAAAATGTT 1335
                                                                                                                                                                                                                                                                                                                                                                                                                                         giggacatactcaaattigcggaiggtiacciaggaaaataigctiigagcigcciigii 1743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1804 ttcaggatgcgtgtgttcctctgggggtgctctttcttccatggtgctccctaagtatcct 1863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ctgcccacctatgatgttgtagtacgtggaggagcccctaatgccttttcgcaatgtatg 1923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1516 CTTCCAACACATGAAGTTGAGAAAAAAAACAACACCAAAGGAATTTGAGGATTTACAA 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1636 ATTAGTGACCTACCACCGGTGACAATTCTGAGGCAAATGATGTAAGGAATTATAATGAT 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAATTAAGAGATGACGACTTGGAAAGAATTTCCTACATACCAAAAAAGAAGGGGGCCAAAT 1866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               atcgagcgtgtgaaactttcatctgggaaaccactggttcctgactatgcaatgtcattc 2340
---aagatgtggattcaaatttagcaagctcagaggatcaagcggatgaa 1296
                                                                                                                                                                                                                                                                          856 ATTTCAAGCACTGAACCAATGGAATCAATTTCTGAGTTGGAAGATGAAGAAGTGACGAA
                                                                              AATGATGACATAGATGAGGCAAGTACTGATATGGAACTCTCAGCTGGAGAGTTTGAAGTA
                                                                                                           gagaagcttgtcggggatatgttatggtggcagtga----cagggaaaatggcatctat
                                                                                                                           tttaaggtccagtgggaaggatacggcctgaggaggagatacatgggaaccgattgataac
                                                                                                                                                                                                                                     gttgcatatgacgagacacaaaaaccatccctgaaaaaagccttgcttcttggcgatgca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGCTCCTAAGACAGATTTTGAGAACTTTATTAGCCTTA-----AAAGATCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 tggtccttcggtgagggggctggtccagatgaaggcaagctcttggatcaccagccttta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cggcttaacaacgatgattatgagcgggttcaacagattcctgtcaagaagggagccaac
                                                       ---gacgaatttgttgta
                                                                                                                                                                                 gigactiticatggatatigiggegiactigaageceaagtatgiteteatggaaaatgig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ggttcccccaagaccgaattccagcgctacattcgactcagtcgtaaagacatgttggat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ttccgcgacctaaagggcgtgagggttggagcaaacaatattgttgagtgggatccagaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTTCGTGATATGCCTGGTGTTTTAGTT---CACAACAACAAAGCGCAACTTAACCTTAGG
                                                     gacagcctcttgacaag-----
                                                                              916
                                                                                                                                                               1384
                                                                                                           1330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1744
1250
                                                    1297
                                                                                                                                                                                                                                                                                                                                                                                                                                        1684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1924
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1867
                                                                                                                                                                                                                    1444
                                                                                                                                                                                                                                                                                                                                1564
                                                                                                                                                                                                                                                                                                                                                                                    1624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2281
                         g
                                                                                                                                   엄
                                                                                                                                                                                    OD
                                                                                                                                                                                                                    Qy
Db
                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           oy
Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    O.
Db
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                    ŏ
                                                                           g
                                                                                                        δ
                                                                                                                                                          δ
                                                                                                                                                                                                                                                                         Qγ
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ο
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
```

```
TELFRADAY GARGE BESDLCFACK PMSVVESTIRWPHRYOSKYTKL CAPTKK PARKGGKKEDEELIKQAKCHEDKALVDGVLINLANDDVYTGLGKKETAKV CAPTKK PARKGGKKEDEELIKQAKCHEDKALVDGVLINLANDDVYTGLGKLKFIAKV LELFREALLOGVPYFOLSTLINLANDVYTGLGKLKFIAKV LAKVPLETTSRIEDGVLPFOLYYDKKYEDPYLTGKTBORDEDTOTTGTWSKVNI AKVPLETTSRIEDGRYIPPOLYYDKKYEDPYLTGKTBORDSBASSLSSDSALNCFE NLHKDEKFLLDLYSGCGAMSTGFCMGASISCWKLITKWSVDINKFACDSLKLNHPETE VRUEAAEDFLAKEWKRICEKFSLVSSTEEVPESTSELEDEWENDIDEASTGAEL EPGEFEVKFLGINFGDOGGTGKTALLAKLALKGWKKKKYNSYDTWRKGYNSSYDTWAPPYSGLGKKKKKY VIDGFKSHLLDLYGOGTGGPCGOISCNNEWKGYNSSYDTWAPPYSGLGKKKKKY VIDGFKSHLLDLYGCGPCGOISCNNEWKGYNSSYDTWAPPYSGLGKKKKKY VIDGFKSHLLDLYGOTYTYVCGGPPCGOISCNNEY RNNEMBALEDGNNOOLLVFLDIIDF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA linear PLN 24-AUG-2001
chromomethylase (CMT1) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 thale cress.
Arabidopsis thaliana
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; eurosidas II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 2511)
Henikoff,S. and Comai,L.
A DNA methyltransferase homolog with a chromodomain exists in multiple polymorphic forms in Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                               2460
                                                                                                                                                                                                        2520
                                                                                                                                                                                                                                             2163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conter, 1100 Fairview Ave. N (Al-162), Seattle, WA 98109-1024, Conter, 1100 Fairview Ave. N (Al-162), Seattle, WA 98109-1024, Conter, 1000 Fairview Ave.
                                                                                                                                                                                                                                                                                 cogatcaaggagaagtacattcaagtcgggaacgcagtggctgtccctgttgcccgggca 2580
                                                                                                                                                                                                                                                                                                        GTGAAGGGAGGAAAGTTAAAATCTGGAAAGAATGTGGTACCTGATTATGCAGTTCATTC
                                                                           atcaagggcaaatcactcaagccgtttgggcgcctgtggtgggacgagacagttcctaca
                                                                                                                                 ctcactatccgggagaacgcaaggttacagggcttccccgattactaccgattgtttggc
                                                                                                                                                                                                                               thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="chromomethylase"
/protein_id="AAB95485.1"
/db_xref="G1:2766713"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2531 bp
ecotype K1-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Arabidopsis
/strain="ecotype Kl-0"
/db_xref="taxon:3702"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="CMT1"
/allele="Kl-0"
1. 2376
/gene="CMT1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF039364.1 GI:2766712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thallana complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .2531
                                                                                                                                                                                                                                                                                                                                                                                 | || ||
2224 TTAGGATA 2231
                                                                                                                                                                                                                                                                                                                                                          ctgggcta 2588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98250692
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AF039364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
                  1924
                                                                                                                                                                                                                                                                                   2521
                                                        2341
                                                                                             1984
                                                                                                                               2401
                                                                                                                                                                                                        2461
                                                                                                                                                                                                                                                                                                                                                          2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT AF039364 LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
                                                                                                                                                                                                                                       8
                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                             g
                                                      Š
                                                                                         g
                                                                                                                               οy
                                                                                                                                                                                                          ŏ
```

WAAQPSEKLPPYPLPTHEVAKKFNTPKEFKDLQVGRIQMEFLKLDNALTLADAISDLP
PYTNYVANDYMDYNDAPAFTEBERTS ISIKRESFLLPAGGODTRRLEDPQPLVLGDDD
LERVSYIPKOKANTRDNEGVLYHNNKAEIRPFRAKLKGSKNVVPARAISFIRGKSK
KPFGRLWGDEIVNYVWRAEPHNGVYIHPWONRVLSVRENARLGGFPDCYKLGGIKE
KIJQVGRAVAVPVGVALGYAFGWASQGITDDEBVIKLPFKYPECMQAKDQI"

1 496 C 583 9 693 t 759

Length 2531; BASE COUNT

10; 1020 tgccaaagtttaaaaatataatcatccacagactgaggtgcgaaatgagaaagccgatgag 1200 | || || || || 973 ATAGATGGAAGTACTGGAACTTGGAGGTTTGAAGTAGAAAGTTC 1032 Gaps gacaacgicgictactgccicggggatgacgictatgicaaggciggagaaaacgaggca 603 AAAAAAGAAGATTATAAAGCAAGCTAAATGCCACTTTGACAAAGCTTTGGTT tgccgttggttcttccgagcagagacacggttatcaattctttggtgtccataagtgtg -TTCCCACCTTGTGCAACCAAAGAGAGTGTTTCTCTCAAATGAGAATGACAATGCT cttgattgcattatctccaaggtcaagatagtccatgt---tgatccaaatatggatcca aagaaaccggatgaggaagagctcaaggccagatgtcactaccggagcgctaaggtg GATGGAGTTCTCATCAACCTAAACGACGATGTCTATGTCACGGGTCTACCAGGGAAGCTG AAATTCATTGCAAAAGTTATCGAGCTCTTTGAAGCTGATGATGGGGTCCCGTATTGTCGC CTCACCTGCATCTGGTCAAAAGTCAACATCGCTAAAGTCCCCATTACCTAAGATTACCTCC 841 aaagccaaggetcagetgatagaggttgegaeetataetatgaeatgtettaetetgtt gcatattctacatttgctaatatctcgtctgaaaatgggcagtcaggcagtgataccgct togggtatttcttctgatgatgtggatctggagacgtcatctagtatgccaacgaggaca 1081 gcagctctttctggcttgaaacttgaaactcgatgggctgttgatttcaacagttttgcg gtccaagatgtggattcaaatttagcaagctcagaggatcaagcggatgaagacagccct .-----gacgaatttgttgtagagctt gattacattggccgcattactgaattttttgaggggactgaccagtgtcactattttact AGAATCGAGCAAAGGGTTATTCCTCCTTGTGATTACTACTACGATATGAAGTAC - - - - -ACCGAACCAGTGGAATCTATTCTGAGTTAGAAGATGAAGATGAAGAAATGACACAC Indels 105; tttcttgccctccttaaggaatgggcagttctatgcaaaaatat----Score 445.8; DB 8; Pred. No. 2.1e-64; ); Mismatches 877; ó; Query Match 16.3%; Best Local Similarity 54.5%; Matches 1177; Conservative cttgacaag-544 169 451 1246 484 229 349 511 196 919 1021 1141 793 604 999 724 393 784 565 733 1201 853 DRIGIN δ g ò g δ qq δy q QY Db δ g δ q δ g οy g δ Q δy q Q δŏ qq οy qq õ g ŏ

1692 1392 1512 1872 1992 1452 1512 1632 1452 1932 1632 ttaccaaaggttcaaaaatcaccagcctaacgatgtgatggagt---atggtggttccccc 2049 2289 1977 2349 2037 TGCAAGGAGAAGCTGAAGGAGTACGTGATAGATGGGTTTAAGTCTCATCTCTTACCACTT 1212 cctggtgatgttgatgtcatttgtggaggcccaccatgccaaggtatcagtgggtttaat 1572 taccaagogogottggaatgatggtggctggttgctatggtctgccacagttcaggatg 1812 CTGCCACCGGTGACAATTATGTGGCAAATGATGTGATGGATTATAATGATGCTGCTCCT 1752 aagaccgaattccagcgctacattcgactcagtcgtaaagacatgttggattggtccttc 2109 ggtgaggggctggtccagatgaaggcaagctcttggatcaccagcctttacggcttaac 2169 CCCGCATGTGGTGGAGATCCGACACGCAGGTTGTTTGATCACCAACCCCTCGTATTAGGA 1863 |||||| |||||| ||| || || || ||| |||| ||| ||| ||| ||| || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || || gacgagacacaaaaaccatcctgaaaaaagccttgcttcttggcgatgcaattcagat CTTGGCATCATGTTTGGAGATCCTCAAGGCACAGGGGAAAAGACACTTCAACTTATGGTA cagtgggaaggatacggccctgaggaggatacatgggaaccgattgataacttgagtgac atggatattgtggcgtacttgaagcccaagtatgttctcatggaaaatgtggtggacata cgtgtgttcctctggggtgctctttcttccatggtgctccctaagtatcctctgcccacc tatgatgttgtagtacgtggaggagccctaatgccttttcgcaatgtatggttgcatat ATGCCTG-----GTGTTTTAGTTCACAACAACAAAGCGGAAATTAATCCTAGGTTTCGA aacgatgattatgagcgggttcaacagattcctgtcaagaagggagccaacttccgcgac ctaaagggcgtgagggttggagcaaacaatattgttgagtgggatccagaaatcgagcgt gtcgggatatgttatggtggcagtga 1033 1393 1093 1153 1513 1213 1573 1273 1633 1333 1693 1393 1753 1453 1813 1513 1873 1573 1933 1633 1993 1693 2050 1753 2110 1804 2170 1864 2230 1924 1978 2410 1453 2290 2350 δ ΩD δ g oy Oy Dp Ωy δλ qq QY Db δ QQ Oy Oy qq oy B g oy Oy g · g g Qγ q d Dp δŽ ò δ

DE 2008 MGGCTGAACCTGCTGTGTGTGTGTGTGTGTGTGTGTGTTGTTGTTGTT	gene	repeat gene GDS	gene		repeat repeat gene CDS
2096 2156 22156 2216 22314 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 20032324 2003324 2003324 2003324 2003324 2003324 2003324 20032324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 2003324 200324 200332	~ ~	10.73	Bradshaw, and Du, H.  Rice Genomic Sequence Unpiblished 2 (bases 1 to 174752) 2 (bases 1 to 174752) 3 (bases 1 to 174752) Crane, L. and Schwartzbeck, J. Crane, L. and Schwartzbeck, J. Direct Submission Submitted (27-MAY-2000) Clemson University Genomics Institute, Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA 3 (bases 1 to 174752) Ming, R.A., Frisch, D., Presting, G., Wood, T., Yu, Y., Rambo, T., Henry, D. and Simmons, J. Direct Submission Submitted (05-DEC-2000) Clemson University Genomics Institute, Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA 4 (bases 1 to 174752) Wing, R.A., Frisch, D., Presting, G., Wood, T., Yu, Y., Soderlund, C.,	Kim. HR., Rambo, T., Henry, D., Simmons, J., Rick, W.R., Johnson, D., Bradshaw, H. and Du.H.  Direct Submission Submitted (08-DEC-2000) Clemson University Genomics Institute, Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA (bases I to 174752) Wing, R.A., Frisch, D., Presting, G., Wood, T., Yu, Y., Soderlund, C., Kim, HR., Rambo, T., Henry, D., Simmons, J., Wilson, R., Johnson, D., Bradshaw, H. and Du.H. Direct Submission Submitted (11-JAN-2001) Clemson University Genomics Institute, Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA (Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA) (Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA) (Min, H., Rambo, T., Henry, D., Simmons, J., Rick, R., Johnson, D., Bradshaw, H., Du, H., Thurmond, S. and Mao, L.	Submitted (01-FEB-2001) Clemson University Genomics Institute, Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA (bases 1 to 174752) Wing R.A., Frisch, D., Presting, G., Wood, T.C., Yu, Y., Soderlund, C., Kim, H., Rambo, T., Henry, D., Simmons, J., Rick, R., Johnson, D., Direct Submission Submitted (06-FEB-2002) Clemson University Genomics Institute, Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA on Dec 5, 2000 this sequence version replaced gi:10140610.  Location, Qualifiers ce
		SSULT 1069324/ OCUS PETITIC CESSION RESION RESION RESION RESION ORGE ORGANIS	TITLE JOURNAL FERENCE AUTHORS TITLE JOURNAL FERENCE AUTHORS TITLE JOURNAL FERENCE	TITLE JOURNAL FERENCE AUTHORS TITLE JOURNAL FERENCE AUTHORS	JOURNAL FERENCE AUTHORS JOURNAL JOURNAL ATURES

```
/ Organism-*Oryza satuva*

// Act xeta-*txxon: 4507

// Actor=*txxon: 4507

// Actor=*txxon
```

```
49465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AC104473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AC104473/c
                                                                                                 1576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                     δλ
                                                                                                                                                                                                                                                                                                               g
                                                                                                 ŏ
/protein_id="AAK00415.2"
/db_xref="G1:18542926"
/db_xref="G1:18542926"
/translation="MWRANVPEREKRESERRSAPWAPTLVAWQHSYPELRLQSPLP
KENLARALARWREKLRADGRGLPPADYSYIKIGDVCEENTAVLSSLWELGASEPACVY
YGDVAGAGGADLLSLGRLSFSGGAARHITVPSPS"
complement(28339. 28478)
/note="Similar to Galjin_083 MITE element"
complement(29362. 30896)
                                                                                                                                                                                                  /note="Contains similarity to homeobox protein HAT22" complement(join(29362. 29671,30181. 30260,30543. 30896)) /gene="CSJNaa0071K19.5" /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation-"MPLSPPLTAAATAAVVAVAGQRLVVQYALIKKKVKSFLQPKLLS
LARKKSIHEVSIDETRELSEGGPFDIILHKLTDKEWQQVLEDYREEHEEVTVLDPPNA
IQHLHNROSMLQPADLNLSNAVGEVCTPRQLVIKNEDPLSIPSAVARAGITLELVAKP
LVVDGTSKSHELSLAVYETSLSMLDPPLVLQEFVNHGGILFKYVVGFTIRVYRFSI
POVNIYDLENNDGIFRFPRVSCATNTAEDAEVDPSIAELPPKPLLEKLGRELRRRIGL
51513. 51536
//OCE="Simple Sequence Repeat (AATA)n"
57362
                                                                                                                                                                                                                                                                                                                                                                         PAESGGODOVVVKREVVRAEBEEYEYEYERALYSSSAAAADDDGGCNSRKKLRLSKEO
SALLEDRFKEHSTLNPKOKVALAKQLNLRPROVEVWFQNRRARTKLKQTEVDCELLKR
CCETLTEENRRLHRELQQLRALTHSTAAGFFWATTLPVPAATLSICPSCERLATAAAA
                                                                                                                                                                                                                                                                                      /product="Putative homeobox protein HAT22"
/protein_id="AAK00416.1"
/db_xref="G1:12643022"
/translation="MAQDDEDVGLALGLSLGSGGHRRQRESRDEAPSSAAASLLTLRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'note-"Contains similarity to inositol 1,3,4-trisphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(join(46188. .46282,46816. .46900,46974. .47029,
47466. 47642,47744. 47863,48062. .48154,48606. .48726,
48830. .48862,49059. .49140,51658. .51797))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="Putative inositol 1,3,4-trisphosphate 5/6-kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 174752;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57915. .58027
/note="similar to Stowaway type MITE element"
complement(58688. .59026)
/note="Similar to Tourist type MITE element"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="Similar to Tourist_012 MITE element"
37648. 37689
/note="Simple Sequence Repeat (AT)n"
42438. 42455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 260; DB 8; Length 17
Pred. No. 1.5e-33;
0; Mismatches 45; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                          30919, 30936
//note="Simple Sequence Repeat (CT)n"
31259, 31280
//note="Simple Sequence Repeat (AT)n"
32569, 33622
//note="Simple Sequence Repeat (TA)n"
33091, 333332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42453. 42496
/nocke-fishiple Sequence Repeat (TATG)n"
complement(46188 .51797)
/gene="OSJNBa0071K19.6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="Simple Sequence Repeat (TAT)n"
complement(63305, 65478)
/gene="OSJNB80071K19.7"
/note="Hypothetical protein"
complement(65305, 65478)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="Simple Sequence Repeat (AT)n"
12453. .42496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'note="Simple Sequence Repeat (AT)n"
                                                                                                                                                                                                                                                                                                                                                                                                                                            GASPTAAADRTNKPTAPHLFSPFAKSAAC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAK00417.2"
/db_xref="GI:18542927"
                                                                                                                                                                                /gene="OSJNBa0071K19.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5/6-kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 9.5
Best Local Similarity 86.4
Matches 287; Conservative
                                                                                                                   repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
```

```
AC104473 127982 bp DNA linear HTG 12-DEC-2001 Oryza sativa chromosome 3 clone OJ1626B05, *** SEQUENCING IN PROGRESS ***, 7 ordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Enrhartoideae; Oryzae; Oryzae.

1 (Dases 1 to 12798); Wing,R.A., Yu,Y., Soderlund,C., Chen,M., Kim,H.-R., Rambo,T., Saski,C., Henry,D., Oates,R. and Simmons,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    L Unpublished
E. (bases 1 to 127982)

Saki,C., Henry,D., Oates,R. and Simmons,J.

Direct Cubmission

Direct Cubmission

AL Submitted (12-DEC-2001) Clemson University Genomics Institute,
Clemson University, 100 Jordan Hall, Clemson, SC 29634, USA

* NOTE: This is a "working draft' sequence. It currently

* consists of 7 contigs, Gaps between the contigs

* are represented as runs of N. The order of the pieces

* is believed to be correct as given, however the sizes

* of the gaps between them are based on estimates that have

* provided by the submittor.

* This sequence will be replaced

* by the finished sequence as soon as it is available and

* the accession number will be preserved.

* the accession number will be preserved.

* the allosing the submittor.

* This sequence will be replaced

* by the finished sequence as soon as it is available and

* the accession number will be preserved.
                                                                                                                                                                                                                                                                                                                                                                                                                                      1636 gatattgtgggggtacttgaagcccaagtatgttctcatggaaaatgtggtggacatactc 1695
                                                                                                                                                                                                                                                                                                                               1696 aaatttgcggatggttacctaggaaaatatgctttgagctgccttgttgctatgaagtac 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   * 57773 127982: contig of 70210 bp in length.
The nucleotide sequence of this BAC clone was generated by combining Monsanto and Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18964: contig of 9201 bp in length
gap of unknown length
gap of unknown length
40158: contig of 21194 bp in length
gap of unknown length
45784: contig of 5626 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bp ...
length
in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57772: contig of 8308 bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        unknown length
of 3680 bp in l
unknown length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db 126219 GTGTTCCTCTGGGGAGCTCTTCCTACCATGGT 126188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1816 gtgttcctctgggggtgctctttcttccatggt 1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gap of
49464: contig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AC104473.1 GI:17530688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HTG; HTGS_PHASE2.
Oryza sativa.
Oryza sativa
```

the accession

Mon Jul

```
Chow, T.-Y. and Hsing, Y.-I.C.

Chow, T.-Y. and Hsing, Y.-I.C.

Chow, T.-Y. and Hsing, Y.-I.C.

Direct Submitssion

L Submitted (03-NOV-2001) Institute of Botany, Academia Sinica, 128, Section 2, Academia Road, Nankang, Taipei 11529, Taiwan

The nucleotide sequence of this BAC clone was generated by combining Monsanto and ASPGC-Taiwan sequencing data.

* NOTE: This is a "working draft" sequence. It currently

* consists of 1 contigs. Gaps between the contigs

* are represented as runs of N. The order of the pieces

* is believed to be correct as given, however the sizes

* of the gaps between them are based on estimates that have

* provided by the submittor.

* This sequence will be replaced

* by the finished sequence as soon as it is available and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACU98835 85721 bp DNA linear HTG 03-NOV-2001 Oryaa sativa chromosome 5 clone 0J1732H01, *** SEQUENCING IN PROGRES ***, 1 ordered pieces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oryza sativa
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Enrhartoideae; Oryzae; Oryzae;
Orowar, 1 (bases 1 to 85721)
Clow, T. T., Hsing, Y.-T.C., Liu, S.-M., Chen, C.-S., Shaw, J.-F.,
Chen, H.-H., Chao, Y.-T. and Wu, H.-P.
Oryza sativa BAC OJ1732H01 genomic sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DD 112785 GGTGCTGTGGATGTCATATGTGGTGGCCCCCCATGTCAAGGCATCAGTGGGTTCAACCGA 112726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Qy 1696 aaatttgcggatggttacctaggaaaatatgctttgagctgcttgttgctatgaagtac 1755 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160 | 1160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DD 112545 CAAGCTAGGCTTGGGATGATGGCGCAGGATATTATGGCCTACCGCAGTTCAGAATGCGG 112486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1576 tacagaaacogtgatgagccactcaaagatgagaaaaacaaacaaatgtgactttcatg 1635
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1516 ggtgatgttgatgtcatttgtgggaggcccaccatgccaaggtatcagtgggtttaatcgg 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Qy 1636 gatattgtgggggtacttgaagcccaagtatgttctcatggaaaatgtggtggacatactc 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            caagcgcggcttggaatgatggtggctggttgctatggtctgccacagttcaggatgcgt 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2; Length 127982;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .
0
                                                                                                                                                                                                                                                                                                                       6 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.9%; Score 216.8; DB 2; Length 78.3%; Pred. No. 2.2e-26; tive 0; Mismatches 72; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ىد
                                  Location/Qualifiers
1. 1279812
/organism="Oryza sativa"
/db_xref="taxon:4530"
/chromosome="3"
/clone="OJ1626B05"
a 28610 c 26937 g 35925 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oy 1816 gigitectetgggggtgetetteetteeatggt 1847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AC098835.1 GI:16603963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HTG; HTGS_PHASE2.
sequencing data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Oryza sativa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 260; Conserv
                                                                                                                                                                                                                                                                                                                       36504 a
                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AC098835/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
```

```
Triticum aestivum putative chromomethylase MTH1 gene, partial cds. AF433678
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Dreau wheat.

Triticum aseitum

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; Liliopsida; Poales; Poaceae; Pooideae; Triticeae; Triticae; Tritica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tactcaaatttgcggatggttacctaggaaaatatgctttgagctgccttgttgctatga 1750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1811 tgcgtgtgttcctctggggtgctctttcttccatggtgctccctaagtatcctctgccca 1870
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Length 85721;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ö
ession number will be preserved.

1 85721: contig of 85721 bp in length.
Location/Qualifiers
1. 85721
Actgalism="Argaza sativa"
/cultivar="%Hyponbare"
/db_xrefe"taxon:4530"
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note="DNA methyltransferase"
/codon_start=1
/product="putative chromomethylase MTH1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product-"putative chromomethylase MTH1"
<1. .>323
                                                                                                                                                                                                                                                                                                                                                                                          Query Match 6.4%; Score 174.6; DB 2; Best Local Similarity 67.4%; Pred. No. 2.2e-19; Matches 246; Conservative 0; Mismatches 119;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .410
/organism-"Triticum aestivum"
                                                                                                                                                                                                                                           /clone="0J1732H01"
20321 c 18772 g 23678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:4565"
                                                                                                                                                                                                                 /chromosome="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         bread wheat
                                                                                                                                                                                                                                                                       22950 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57432 CATAT 57428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1871 cctat 1875
                                                                                                  source
                                                                                                                                                                                                                                                                       BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AUTHORS
                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF433678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

"chromomethylase CMT2"

g ò q ŏ g ò 셤 õ g ŏ 셤

```
join(30 ...593,703 ...737,848. .1880,2543 ...2617,2675 ...2794,2921 ...3023,3189 ...3373,3482 ...3547,3628 ...3876,4043 ...4101,4177 ...4243,4371 ...4700,4773 ...4841,4934 ...5020,5096 ...5183,5299 ...5417,5495 ...5596,5782 ...5825,5909 ...5978,6063 ...6166,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENLGKSKGKCGKALASCSFRSTRLSGTVETGWTETLNRRRICGPALCGAEGVRGTERL
VOISKUNDHUCCEAMKKCEGDGLVSSKQELLVPESGCIKKTVNGCRORTLGKPRSGGLNT
VOISKUNDHUCCEAMKKCEGDGLVSSKQELLVPESGCIKKTVNGCRORTLGKPRSGGLNT
DILHTSSLL SINDTSNDTATALVEDAMESLLGGKTSACGAADKGKTREMHVNST
VILLSDSDEPSITELNEDLMTTATALVEDAMESLLGGKTSACGAADKGKTREMHVNST
RTAVQEQNRRSICFTIGFPLSCEEAQERWRRYTELEKMEXTYTSEFSGTTEGRIGCVYRF
PSFIMEROATHNBKRSTRYSTWANDVVDCLISKVTVLQVSPRAGLKPNSTRSDS
SGCGGMSTGLSLGAKISGSVFSENKLBCWADVVPTSSTESILKKKSFGSELPVLDLY
SGCGGMSTGLSLGAKISGSVFSENKLBCWADVVPTSSTESILKKKSFGSELPVLDLY
SGCGGMSTGLSLGAKISGSVFSENKLBCWADVVPTSSESSSSDDDDSEEBTEREKLUNDLGFGD
PDRYGGKNGLKFVTWKGYRSDFSWSTGTSESSSSSSDDDDSEEBTEREKLUNDLFGFGD
PDRYGGKNGLKFVTWKGYRSDFSMSTGTSESSSSSSDDDDSEEBTEREKLUNDLFGFGD
PDRYGGKNGLKFVTWKGYRSDEDTWELLABELSNCODAIREFYTSGFRSKILPLEGRVG
VICGGPPCGSISGYNRHRNVDSPLNDERNOQIIVFMDILEN
                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="aak69757.1"
/db_xref="G1:14581904"
/db_xref="G1:14581094"
/translation="MLSPARCESEEAQAPLDLHSSSRSEPECLSLVLWCPNPEERAPS
STRELIKLPNDGEMSLRRSTTLNCNSPEENGGEGRVSQRKSSRGKSQPLLMLTNGCOL
RRSPRERFYUANFDNYCSYPVTEGGVSQRNSSRGKSQPLTLTURGCLRREPRSRAVD
GNPDSVCSVPVPTGKTGSRKRKSNSALDKRESSDSEGLTFRDTATARSLEMEI1SECO
YKNNVAEGRSKLACOPPAKRKVDSDTLLYSSINSSKQSLGSNKRMRRSQRFWKGTENBGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DKGSLGRYALSRLVNMRYQARLGIMTAGCYĞLSQFRSRVFMMGAVPNKNLPPFPLFTH
DVIVRYGLPLEFERNVVAYAEGQPRKLEKALVLKDAISDLPHVSNDEDREKLPYESLP
KTDFQRYIRSTKRDLTGSAIDNCNKRTMLLHDHRPFHINEDDYARVCQIPNRKGANFR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DLPGIIVRNNTVCRDPSMEPVILPSGKPLVPGYVFTEQGGKSKRPFARLMWDETVPTV
LTVPPCHSQALLHPEQDRVLTIRESARLQGFPDYFQFCGTIKERYCQIGNAVAVSYSR
ALGYSLGMAFRGLARDEFLKILPGNFSHSTYPQLQETIPH"
1 1195 – 1400 g 2.105 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4611 CAAGCAAGGTTAGGTATCATGACAGCTGGTTGCTATGGTCTTTCCCAATTTCGATCCAGA 4670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1516 ggtgatgttgatgtcatttgtggaggcccaccatgccaaggtatcagtgggtttaatcgg 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gatattgtggcgtacttgaagcccaagtatgttctcatggaaaatgtggtggacatactc 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1696 aaatttgcggatggttacctaggaaaatatgctttgagctgccttgttgctatgaagtac 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               caagegeggettggaatgatggtggetggttgetatggtctgeeacagtteaggatgegt 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match 5.9%; Score 160.2; DB 8; Length 6605; Best Local Similarity 67.6%; Pred. No. 5.3e-17; Matches 225; Conservative 0; Mismatches 108; Indels 0;
                                                                                                                                                                                                                                                                                                                       /note="putative cytosine methyltransferase"
/codon_start=1
                                                                        /product="chromomethylase CMT2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1816 gigitectetggggigetetttettecatggig 1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1636
                                                                                                   gene
                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .2794,
.4101,
.5183,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arabidopsis: thaliana
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
1 (bases 1 to 6605)
Bartee, L., Malagnac, F. and Bender, J.
Arabidopsis cmt3 chromomethylase mutations block non-CG methylation and silencing of an endogenous gene
Genes Dev. 15 (14), 1753-1758 (2001)
/protein_id="AAL28119.1"
/db_xref="G1:16755863"
/translation="MVCGGPPCQGISGINRFRNYNEPLEDDRNKQLVVFMDVVNYLRP
/translation="MVCGGFPCQGISGINRFRNYNEPLEDDRNKQLVVFMDVVNYLRP
rxyvmenvydilkFaDGFLGRYALSRLVSMRYQARLGIMVAGCYGLPQFRMRAFLGGA
LPSRV"
                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF383171 6605 bp DNA linear PLN 18-JUL-2001
Arabidopsis thaliana chromomethylase CMT2 (CMT2) gene, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Values 1 to 6605)

Bartee, L., Malagnac, F. and Bender, J.

Bartee, L., Malagnac, F. and Bender, J.

Buiret, Submission State (18-MAY-2001) Biochemistry and Molecular Biology, Johns Submitted (18-MAY-2001) Biochemistry and Molecular Biology, Johns Hopkins University Bloomberg School of Public Health, 615 N. Wolfe St., Baltimore, MD 21205, USA

Location/Qualifiers

1. 6605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1532 tttgtggaggcccaccatgccaaggtatcagtgggtttaatcggtacagaaaccgtgatg 1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1652 tgaageceaagtatgtteteatggaaaatgtggtggaeataeteaaatttgeggatggtt 1711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="ecotype: Wassilewskija"
join(<30. .593,703. .737,848. .1880,2543. .2617,2675.
join(<30. .3023,3189. .3373,3482. .3547,3628. .3876,4043.
4177. .4243,4371. .4700,4773. .4841,4934. .5020,5996.
5299. .5417,5495. .5596,5782. .5825,5909. .5978,6063.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1592 agccactcaaagatgagaaaaacaaacaaatggtgactttcatggatattgtggggtact 1651
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acctaggaaaatatgctttgagctgccttgttgctatgaagtaccaagcgcggcttggaa 1771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65 AGCCGCTGGAAGATGATAGAAACAAACAGTTGGTTGTTTATGGATGTTGTTAACTATC 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             185 TCCTGGGGCGATATGCGCTTAGTCGTCTTGTCTCCATGAGATACCAAGCTAGGCTTGGAT 244
                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 6.3%; Score 173.6; DB 8; Length 410; Best Local Similarity 71.8%; Pred. No. 3e-19; Matches 227; Conservative 0; Mismatches 89; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Arabidopsis thaliana"
/db_xref="taxon:3702"
/chromosome="4"
                                                                                                                                                       g
                                                                                                                                                    107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF383171.
AF383171.1 GI:14583093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ctctttcttccatggt 1847
||||| ||| ||| ||| CTCTTCTTCGGGT 320
                                                                                                                                                 78 c
                                                                                                                                                       ಹ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
AF383171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
```

Gaps ö

```
intron
                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                           exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                      'E 3 (bases 1 to 119111)

Submitted (09-MAR-2000) MIPS, at the Max-Planck-Institut fuer Direct Submission

Direct Submission

L Submitted (09-MAR-2000) MIPS, at the Max-Planck-Institut fuer Submitted (09-MAR-2000) MIPS, at the Max-Planck-Institut fuer Biochemie, Am Klopferspitz 18a, D-842152 Martinsried, FRG, E-mail:
Biochemie, Mak Bevan, Molecular Genetics Department, Cambridge Laboratory, John Innes Centre, Colney Lane, NR4 7UJ Norwich, UK, E-mail: michael. Devan@bbsrc.ac.uk

On Aug 18, 1999 this sequence version replaced gi:2832611.
Information on performance of analysis and a more detailed annotation of this entry and other sequences of chromosomes 3, 4 and 5 can be viewed at: http://www.mips.biochem.mpg.de/proj/thal/.
ATF13C5 119111 bp DNA linear PLN 10-MAR-2000
Arabidopsis thaliana DNA chromosome 4, BAC clone F13C5 (ESSA
project).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contains Prokaryotic membrane lipoprotein lipid attachment
                                                                                                                                                                        Eukaryota, Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnollophyta; eudicotytedons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis. [ (bases 4495 to 119111) Brassicales; Brassicaceae; Arabidopsis. Bevan, M., Pohl,T., Welzenegger,T., Bancroft,I., Mewes,H.W., Uppublished

    .4494
/note="positions 1-4494 are not included within BAC clone
F13C5"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(3488. .5125)
/gene="A14g18840"
/note="similarity to hypothetical proteins - Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2221. .3267
/gene="AT4g18830"
2221. .3267
/gene="AT4g18830"
/note="Similarity to MICROTUBULE ASSOCIATED PROTEIN IA
(FRAGMENT) - HOMO SAPIENS, EMBL:095643"
                                                                                                                                                                                                                                                                                2 (bases 1 to 4778)

Bevan, M., Robben, J., Grymonprez, B., Volckaert, G., Bancroft, I.,

Mewes, H., Lemcke, K. and Mayer, K.F.X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
1. 119111
/organism="Arabidopsis thaliana"
/bariety="Columbia"
/db_xref="taxon:3702"
/chromosome="4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="AT4g18840"
/number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement(3488. .5125)
/gene-"AT4g18840"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2221. .3267
/gene="AT4g18830"
/number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3488. .5125
/gene="AT4g18840"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ISVFQQVHNDFNFH"
                                                                            AL021711
AL021711.2 GI:5738363
                                                                                                                                                         Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             thaliana
                                                                                                                                      thale cress.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                    SOURCE
ORGANISM
                   LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     exon
                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
```

```
/codon_start=1
/prodein_la="thypothetical protein"
/prodein_ld="cAal6742.1"
/db_xref="[G1:2832613"]
/db_xref="sprEmBL:049400"
/tb_xref="sprEmBL:049400"
/translation="WVDLDQLQQIRDLENIINHLEANELLPQPNPMYHDPLEDLGDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product-"hypothetical protein"
/protein_id="CAA15743_2"
/protein_id="CAA15743_2"
/db_xref="GI:5925639"
/db_xref="SPIFSBABL:049401"
/translation="MpSVQVRMDNKTTAAELDAIAENLIKCIDVMTITKHNLALQFR
SFITNYPPRALVEDSSSAVSDLGFTESETGASTRVLGKSASWIFIFFNVTEKC"
9456.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /translation="msknegsltsvsyfitttydmyddlsldsiiswsgsgksfiuwn
peefynnllorpcforinfffsfleshgfrkidsgkwefandneyrgorhlinniisd
viegevoydogmelfkaeklerrikkvyddolpphnsyftsklpfptkiyemyddpss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="similarity to heat shock transcription factor HSF1, Arabidopsis thallana, PIR2:S52641
Contains Prenyl group binding site (CAAX box) AA289-292"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DAIISWSQSGKSFIIWNPQEFCKDHLRRLFNTLHIHFFFYKLKIFGFKKINPKKWEFA
NDNFVRGQRHLVEIIISNDKKKNDQLRKQDAREKKMAEAGELFKLQIEEMSDMRKKMK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product-"heat shock transcription factor-like protein"
/protein_id="CAA16744.1"
/db_xref="GI:2832615"
site AA304-314;Prokaryotic membrane lipoprotein lipid attachment site AA405-415"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Join(10938, .11150,11238, .11639,11736, .11996)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(9456. .9560,10169. .10357)
/gene="AT4g18860"
/codon_start=1
                                                                   /product-"putative protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      db_xref="SPTREMBL:049402"
                                                                                                                                                                                                                                                                                                                                                                                                                          complement(6832..7011)
/gene="AT4918850"
6832..7011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(6832. .7011)
/gene="AT4g18850"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10938. .11996
/gene="AT4918870"
10938. .11150
/gene="AT4918870"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6832. .7011
/gene="AT4918850"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PASSDVTEGSNSDED"
9456. .10357
/gene="AT4918860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="AT4g18870"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /number=1
9561. .10168
/gene="AT4918860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10169. .10357
/gene="AT4918860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9456. .9560
/gene="AT4918860"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /number=1
10169. .10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /number=2
```

```
Arabidopsis thaliana DNA chromosome 4, contig fragment No. 49. AL161549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation-"mvackvrvtmgfhkspstkktkdmpsplplpppppplkppssg
Sattkpplnpskpgftrsfgvyfprasaqvhataaaashngvvselrrgveelrerea
Llktenleladkngeldelrketarlabdnerlrrefdrseemrrecetrekembael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           join(9577. 9966,9958. 10809,10980. .11111,11160. .11377,
11463. .11574,12310. .12447,12541. .12672)
/gene="Af4g18560"
                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota, Tracheophyta; Embryophyta; Tracheophyta; Spermatophyta; Viridiplantae; Streptophyta; Eukaryota, Viridiplantae; Streptophyta; Core eudicots; Spermatophyta; Magnollophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis. 1 (bases 1928 to 113583)
Mueller, M.W., Muendlein, A., Felber, R., Mewes, H.W., Lemcke, K. and Mayer, K.F. X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submissation
Submistation
Submistation
Submistation
Submistation
Submistation
Submistation
Submistation
Biochemie, Am Klopferspitz 18a, D-82152 Martinsried, FRG, E-mail:
IemcKedemips.biochem.mpg.de_nmayerfemips.biochem.mpg.de_project
Coordinator: Mike Bewan, Molecular Genetics Department, Cambridge
Laboratory, John Innes Centre, Colney Lane, NR4 7UJ Norwich, UK,
E-mail: michael.bevan@bbsrc.ac.uk
Information on performance of analysis and a more detailed
annoctation of this entry and other sequences of chromosomes 3, 4
and 5 can be viewed at: http://www.mips.biochem.mpg.de/proj/thal/
this fragment has an overlap with ATCHRIV8 at the 5' end and an
overlap with ATCHRIVSO at the 3' end.
Location/Quallifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 (bases 113371 to 118148)
Robben J., Grymonprez, B., Volckaert, G., Mewes, H.W., Lemcke, K. and
Mayer, K.F.X.
                                        83820 CGTATGGACAAAGGTTCTCTTGGGCGATACGCTTTGAGCCGTCTTGTGAACATGAGATAC 83879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3 (bases 117865 to 199075)
Pohl, T., Welzenegger, T., Mewes, H.W., Lemcke, K. and Mayer, K.F.X.
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hilbert, H., Braun, M., Holzer, E., Brandt, A., Duesterhoeft, A., Mewes, H. W., Lemcke, K. and Mayer, K.F. X.
Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="similarity to pherophorin-S, Volvox carteri,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="pherophorin-like protein"
/protein_id="CAB78858.1"
/db_xref="G1:7268650"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         contains EST gb:A1997040.1, W43771"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .199075
/organism="Arabidopsis thaliana"
                                                                                                                                                         83940 GTTTTCATGTGGGGAGCTGTTCCAAACAAGGTG 83972
                                                                                                                               1816 gigticototiggggigetetticiticoatggig 1848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5 (bases 1 to 199075)
EU Arabidopsis sequencing, project.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /variety="Columbia"
/db_xref="taxon:3702"
/chromosome="4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9577. .12672
/gene="AT4g18560"
                                                                                                                                                                                                                                                                                                                                               AL161549.2 GI:7268649
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 28924)
                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PIR:T10798
                                                                                                                                                                                                                                                                                                                                                                                          thale cress.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                      RESULT 11
ATCHRIV49
LOCUS
                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                   g
                                                                                                                                                                       Op
                                           à
                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="heat shock transcription factor-like protein"
/protein_id="CAA16745.1"
/protein_id="CAA16745.1"
/db_xref="G1:2832616"
/db_xref="G1:2832616"
/db_xref="SPFEMBL:049403"
/translation="MDENNHGVSSSLPPFLTKTYEMVDDSSDSIVSWSQSNKSFIV
WNPPEFSRDLLPRFKHNNFSSFIRQLNTYGFRADPGOREFANDDFVRGOPHIAKNI
WNPPEFSRDLLPRFKHNNFSSFIRGLNTYGFRADPGOREFANDDFVRGOPHIAKNI
WRYRELKERLQHPRERROYTWSFVSOYLERFCELALMLSPCVPETWERKRFPFTEFFP
DEPMLEENKTCVVVREGGSTSPSSHTREHQVEQLESSIAIWENLVSDSCESMLQSRSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MTLDVDESSTFPESPPLSCIQLSVDSRLKSPPSPRIIDMNCEPDGSKEQNTVAAPPPP
PYAGANDGFWQQFFSENPGSTEQREVQLERKDDKDKAGVRTEKCWMNSRNVNAITEQL
                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="Ar4g18880" (3521,13599. 13820))
/gene="Ar4g18880" (Ante="similarity to heat shock transcription factor, Zea mays, PIR2:S61448 (Contains EST gb:AW004500.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DD 83700 CACAGGAATGTTGATTCTCCATTGAATGAAGGAATCAGCAAATTATAGTTTTTATG 83759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  contains EST gb:AI995127.1, H76024, AI992723.1, R90295, 
T88175"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="similarity to predicted protein, Arabidopsis
thaliana, PID:G3834322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 8; Length 119111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.9%; Score 160.2; DB 8; Length 167.6%; Pred. No. 5.5e-17;
ive 0; Mismatches 108; Indels
                                                                                                                                                                                                                                                                                                                                                                                      complement(join(12538. .13521,13599. /gene="A14g18880"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17543. .20028
/gene="%14918890"
join(17543. .17758,19390. .20028)
/gene="%14918890"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /codon_start=1
/product="putative protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement(13522. .13598)
/gene="AT4g18880"
                                                                                                                                                                                                                                                                                   .13521)
                                                                                                                                                                                                                                                                                 complement(12538.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement(13599.
/gene="AT4918880"
                                                                                                                                                                                                                                                                                                                                               12538. .13820
/gene="AT4918880"
                     11151. .11237
/gene="Ar4g18870"
                                                                                 11238. .11639
/gene="AT4g18870"
                                                                                                                                               11640. .11735
/gene="AT4918870"
                                                                                                                                                                                                                                      /gene="AT4g18870"
                                                                                                                                                                                                                                                                                                       /gene="AT4918880"
AKEVKEQEVRLCKL"
                                                                                                                                                                                                                   .11996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GHLTSSERS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /number=2
17543. .20
                                                                                                                                                                                               /number=2
11736. .1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thaliana,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 67.63
Matches 225; Conservative
                                                                                                                                                                                                                                                                /number=3
                                                                   /number=1
                                                                                                                               /number=2
                                                                                                                                                                                                                                                                                                                               /number=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     intron
                          intron
                                                                                                                                                    intron
                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                     exon
                                                                                                                                                                                                                                                                                      exon
                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
```

	VELRKLVSSESDDHALSVSQRPQGLMDVSAKSNLIRSLKRVGSLRNLPEPITNQENTN KSISSGDADGDIYRKDEIESYSRSSNSEELTESSSLGTVRSRVPRYPPPRRSISL GDSTENRADPPPQKSIPPPPPPPLLQQPPPPPSVSKAPPPPPPPPRSISLASA KRRVPEVYPVEYHSLMRDSTNSRRDSTGGGRAAABAALLANSARDWIGEERRSYYL LATKTDVETQGPIRELIKBVGNAARSDIEDVYPPVKRLIDBELSYLFKVGKFVVYSLK VDERAVLKHFEWPEQKADALREAAFCYFDLKKLISEASRFREDPRQSSSSALKKWOAL	exou	1254112672 /gene="AT4918560" /number=7 complement(join(1299113077,1317613264,1338213507, 1359613662) /gene="AT4918580"
exon	FEKLENGYSTSLENRESAATKEKSPOIPYDWMLETGITSQIKLASYKLAMKYMKRSA ELEAIEGGOPEEEELIVQGVRFAFRYHQFAGGFDAETWKAFEELRDKARSCHVQCQSQ THOHKLCFRSTPC" TYOHKLCFRSTPC" Gene-"Attal8560"	gene CDS	1299113662 /gene="%#44418880" complement(join(1299113077,1317613264,1338213507, 1359613662) /gene="%#4418880"
gene	/number=1 9612. :11059		/note="contains EST gb:AI998801.1, AI138148" /codon_start=1
gene	/gene="AT4g18570" complement(join(96129715,1048310747,1097311059))		/product="hypothetical protein" /protein.id="CABJ8860.1" /drof="martonics"
CDS	<pre>Complement(join(96129715,1048310747,1097311059)) /gene="AT4G18570"</pre>		//UD_XTET - G.1 ' LOOD 0.2 / Translation- MATLAPHAVSVLHSRKRGGCNGNFVSFSGVPLPYLIRPRRKIP PVDTFDFYNDSDDESGEGBGHSDDEYVVVDRAEAIMPNVKTEKPGAIOMMELSKDAV
	Codon_state=1 /product="hypothetical protein" /protein_id="CAB78599.1"	exon	GDDSSKAKAGYSSDBNFVV" complement(L291, .13077) /gene="A14g18580"
	VOLXTREF="161" (2009)1" /ITABISTATION="MSENAAPPTSLIKNIMKSPCVSTSVFICNQVILPRRRPHRRWNL /ITABISTATION="MSENAAPPTSLISPTCLINSCAPPTSCAPPTSLISPTCLINSCAPPTSLISPTCLINSCAPPTSLISPTCLINSCAPPTSC	intron	//unmort. complement(13078, .13175) /gene=^AT4918580*
exon	complement (9612. :9715)	exon	complement(1317613264) //gene=*AT4918580*
intron	complement(971610482) /gene="A <u>1</u> 4918570"	intron	/lumber.complement(1326513381) /gene="Ant4g18580"
intron	Jounbert 1 9907. 9957 /gene="A <u>1</u> 4g18570"	exon	/number_1 complement(1338213507) /gene="AI4g18580"
exon	Outber 19 9958. 10809 /gene="AI4918570"	intron	/number: complement(13508 .13595) /gene="A14g18580"
exon	\text{Complement(1048310747)} \text{gene="A14g18570"}	exon	/numort.complement(13596, .13662) /gene="#14918580"
intron	Complement(1074810972) /gene="A14g18570"	dene	1466220681 /gene="AT4G18590"
intron	/number=2 1081010979 /ann="Art418570"	CDS	join(14662, .14917,15014, .15052,16278, .16535,16652, .167) 17087, .17423,17520, .17854,18312, .18366,19447, .19527, 19615, .20681) //occommunications
exon	Julius-Er 2 Complement (10973 . 11059) /gene="Af14918570"		<pre>/yetne-*ingliansy /note="coverlap to next genmodel similarity to 18.3K protein precursor, pollen, Zee mays, prep. not107</pre>
exon	10980  11111		Tracionalistory Contains Pollen proteins Ole e I family signature AA309-318
intron	Juli211159 /gene="Ar4g18560"		contains EST gb:A1999674.1, AA721906" /codon.start=" /product="pollen-specific protein-11ke"
exon	Juluber		/protein_ld="CAB/BB61.1" /db_xref="G1:7288653" /translation="MDTSSPAAFVNGALLRRYIGQKVRAVIQVIRSDVGSVIGKSTDD
intron	/number=4 11378		QQIVWEGSPQPPLTTYLEVIGIAETDNTTAREWTNFGDSFDVQNNEEKKALANDRRK AMTDLQMEVEVDTNSSLIGSSLPREQUYNTRCKRRTYAIEBNIYPHEPGRGEEGFANK RRSGNSEQYQCSSITYEDMKNMQTIHDGNVERKLLCFGGNGRLGYFNNAGMQCSGGA
exon	/number=4 11463. 11574 /gene="Ar4g18560"		LKITDGENFMILYKTELCGSCELVVLFSNISNKENDYKREEVSKRRPESFNILKQMAS KAIFFEPVSAVCLSGLAGYAIADANDPGNFQIQGSYVCDTCRQGYTALSKFLEGAKY KLECRSRTNGTVTLTKERVTDKTGSY RMEVTGDHEEDVCELVLVESPDSGCSDVSKRA VIRNAAKTSTRAMDTYSHERRY VNDT. GEWOOMDSARCDAAFRIGTUDGUT.
intron	F		GQARNISETDGRSVTTHGAATCISGSFKEGYVESGTSAKARYAAAGSFCRIFSLGTGS SGKHLLCEPVSVVKLGTPEPVIFSSRTASVEDRSVVIVSLGKVLLCGLVSVVELEASE PGIFSSKTASFKERSVAKGFSGKVLLCRPVSVAEPGASEPGIISPKTASFKEISVATG
exon intron .	123101244/ 123101241 // number=6 1244812540	Query Match Best Local Similarity Matches 225; Conserv	5.9%; Score 160.2; DB 8; Length 199075; larity 67.6%; Pred. No. 5.5e-17; Conservative 0; Mismatches 108; Indels 0; Gaps 0;
	/gene="AT4g18560" /number=6	Qy 1516 ggtgatgt	ggtgatgttgatgtcatttgtggaggcccaccatgccaaggtatcagtgggtttaatcgg 1575

	exon compleme /gene="	complement(57926008) /gene="Af4g19030"
Oy 1576 tacagaaaccgtgatgagccactcaaagatgagaaaaacaaac	/number≈1 gene complemen 6969, .71	/number=1 complement(join(5792. :6008,6113. :6210,6326. :6544, 6569. :7193,7306. :7473))
Gaargrichtrotocarrcaacarcaacgaarca totoocotactiqaaqococaactatotocatoaa	/gene=" /gene=" complem complem 6969	/gene="AT4g19030" 
197130 GACATAGTGGAGTATCTGAAACCCTCATATGTGTTGAAAATGTTGTTGAAATTTG	/gene=". /note=":	/gene="A14g19030" /gene="A14g19030" /note="Atrong similarity to major intrinsic protein, Oryza
OY 1696 aaatttgoggatggttacctaggaaaatatgctttgagctgccttgttgctatgaagtac 1755  Db 197190 CGTATGGACAAAGGTTCTTGGGCGATACGCTTTGAGCGTCTTGTGAACATGAGATAC 197249	Cortain Contain lipoproi membran	Jactury, ART. 2007 Signature AA57-65; Prokaryotic membrane lipoprotein lipid attachment site AA7-17; Prokaryotic membrane lipoprotein lipid attachment site AA59-69
Oy 1756 caagcgcggcttggaatgatggttggctggttgctatggtctgccacagttcaggatgcgt 1815	contains EST g /codon_start=1 /product="nodu /protein_id="0	contains EST gp:A1994623.1, R65436, Z34680, AA651095" /codon_start=1 /product="nodulin-26-like protein" /protein_id="cAB78905.1"
Oy 1816 gigitociciggggigototitoticoatggig 1848 	/db.zre/ /transl. SLLSVSN SLLSVSN	/db_xreg="01:728689" //translation="MADISGNG"/GNAREEVVMVNLKDEVEHQQEMEDIHNPRPLKKQD SLLEVSYPELQKLIARELGYFFLYFTGGASVVVNMQNDNVYTLEGIALVMGLTIMVLI YSLGHISGSHINDAVTIRARGKGCRFFLKQYPAXTAGYTGGYTGGAGAGAGAGAGAGAGAGAGAGAGAGAGAGA
RESULT 12		ELAGIAL GETVULLIAAAVSSASMINGESIGPALVYGCYKGIWIYLVAPTIGAIAG AWYVINYTUKPLAKPIASSISKIKIVRIGST"
LOCUS ATCHRIV50 199382 bp DNA linear PLN 16-MAR-2000 DEFINITION Arabidopsis thaliana DNA chromosome 4, conting fraement No. 50.	intron complemen /gene="AI /number=1	Complement(0009oll2    Complement(0009oll2    Complement
	exon complement (denember 1/2)	complement(61136210) /gene="A14919030"
NETWORDS THAT THE CRESS.  ONGANISM Arabidopsis thaliana	/number=z intron complemen /qene="AT	/number=2 complement(62116325) /aene="%T441930"
	/number=2 complemen /gene="AT	/number=2 complement(63266544) /gene="AT4g19030"
	/number=3 intron complemen /gene="AT	/Dumber=3 complement(5545, .6968) /gene="A14d19030"
JOURNAL Unpublished  REFERENCE 2 (bases 106052 to 196602)  AUTHORS Van Der Schueren, J., Chuang, Y.J., Aert, R., Defoor, E., Robben, J.,	/number=3 exon complemen /gene="AT	/number=3 complement(69697193) /gene="A14g19030"
•	/number=4 intron complemen /gene="AT	/number complement(71947305) /gene="A14g19030"
Lem	/number=4 exon complemen /qene="AT	/number=4 complement(73067473) /dene="A14d19030"
Poh Unp	/number= compleme /gene="A	/number=5 complement(1586315964) /gene="Af4619840"
REFERENCE 5 (bases 1 to 199382) AUTHORS US Arabidopsis sequencing, project.	/number=1 gene complemen	15964,1605716158,1642
AL	17400- 17400- 1808- 2027- 21098-	17400. 17626.17749. 17904.18166. 18230.18524. 18619. 18908. 19008.19112. 19152.19462. 19500.19714. 19829. 20273. 20236.203601. 20566.20669. 20722.20898. 20972.
Laboratory, John Innes Centre, Colney Lane, NR4 70 E-mail: michael.bevan@bbsrc.ac.uk	/gene=",	gene="AT4919040" 586321235
COMMENT Information on performance of analysis and a more detailed annotation of this entry and other sequences of chromosomes 3, 4 and 5 can be viewed at: http://www.mips.blochen.mpg.de/proj/thal/this framment has an overlap with InfoRRNING at the 5, and and an an overlap with InfoRRNING at the 5, and and an	CDS complem: 116655.	/gene="#14g19040" complement(join(1586315964,1605716158,1642116561, 11655216699,1684916992,1704217190,1728117359, 774/0. 17678. 17749. 17604. 18166. 18230, 1863, 1861
PEATURES Location/Qualifiers source 1199382	19908. 20273. 21098.	.19008, 19112. 19152, 19462. 19500, 19714. 20376, 20501. 20566, 2066920722, 2089821235)
/organism="Arabidopsis thaliana" /variety="Columbia" /db_xref="taxon:3702"	/gene="/ /codon_ /produc	gene="AT4g19040" /codon_start=1 /product="hypothetical_protein"
gene	/protei. /db_xre /transl	'Procein_id="CALV8U6.1" 'db_xref="G1:7268699" 'translation="MSKVVYEGWMVRYGRRKIGRSYIHWRYFVLEPRLLAYYKKRPQD

Annumber=11   Annumber=12   Annumber=12	Db 2935 GGTCGTGTGTGTGTGTGGCGACCTCCATGCAAGAATAGTGGTTATAACCGG 2994  Qy 1576 tacagaaaccgtgatgagccactcaaagatgagaaaaacaaac	1636		Oy 1756 caagcgcggcttggaatgatggtggttgctatggttgccacagttcaggatgcgt 1815	Oy 1816 gigiticctctggggigctctttcttccatggig 1848 		RESULT 13 AF364174 LOCUS AF364174 (4999 bp DNA linear PLN 10-JUL-2001 DEFINITION Arabidonsis that and chromomethylase 3 (CMT3) gene. complete cds.	AF364174 AF364174.1 GI:14647156	SOURCE thale cress.  ORGANISM Arabidopais thaliana Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Manollophyta; eudicotyledons; core eudicots;	Rosidae; eurosids II; Brassicales; Brassicacae; Arabidopsis. REFERENCE 1 (bases I to 4999) AUTHORS Lindroth, A., Cao, X., Jackson, J.P., Zilberman, D., McCallum, C.M.,		JOURNAL Science 292 (5524), 2077-2080 (2001) MEDLINE 21301973	PUBMED 11349138  REFERENCE 2 (bases 1 to 4999)  AITHORS Lindroth A.M., Cao.X., Zilberman, D. and Jacobsen, S.E.	Direct Submission Submitted (26-MAR-2001) Molecular, C	FEATURES Location/Qualifiers  Source 1,4999  Arraniama habidonsis thallana	/db_xref="taxon:3702" /note="ecotype: Landsberg erecta" +^note="ecotype: Landsberg erecta" +^note: 1400.	1504. 1603,1724. 1932,2023. 2088,2164. 2421,2514 1504. 1603,1724. 1932,2023. 2088,2164. 3483,3614 2655. 2721,2954. 3283,3361. 3429,3469, 3585,3564 3667. 3964.4091. 4195,4275.	4837>4999) /gene="CMT3"
YOVPIKTMAIDGNCRVEDRGIKTHHGHWYVLSVYNKKEKSHRITMAAFNIQEALMWK EXTESVIDGNGESQVANGQOYVSFEXKGOMOTGTRASSDIBESHLCITLGKRESAIS FRESAAEDEBDSRREIMRFTIGNGALEDAAISEMGFRICTLEVUYLPRGSCSRA MKAVGVVEATCEEIFELLMSMDGTRYENDCSFOFGSLVEEVDGHTAVLYHRILLDWFP MIVWRPDLCYVEYWRNDDOSYGGGYNISPLKFRORGRRTQVOHIJOIDDKGWGGGYL PAROQHCLLOMINSVAGLREWFSCOTDERGVHTRIPWWANSASSLGITKGGKETHKSA FSLLOGYNSVNRNSLIADESDDDDEFOITAESGGHPKLNBASCVLEOPETSKFPETDVK RPEEEPAHNIDLSCFSGNLKRNENNBANGWRISDGONNFKVRGKNFFGGERRFTHVCF CPRNTIRKIPAGKHLADLANDRNBCHDRSKRIDHYARKGGAAQVAAEKGLESMVVNQV GYGGLYGVITSLYVEMAFLVGSLLQRFVDGDDERNSRLKIPLVPKIDVDIGSSTVAN GYGGLYGVITSLYVEMAFLVQANTAEEQPERLIGAVRVSHIELSSAIVPNLESE" COMPLEMEN 174919040"  AGENERAL A44919040"	exon	/number=2 exon	intron complement(1656216654) /gene="Arrigi19040" /number=3 exon complement(1665516699)	/gene="A14g19040" /number=4 intron complement(1670016848) /gene="A14g19040"	/number=4 exon complement(1684916992) /gene="Aft4g19040" /number=5	intron complement(1699317041) /gene="A14g19040"	/number=5 complement(1704217190) /gene="Art4g19040"	intron complement(1719117280) //gene*/AT4419040*	exon complement(1728117359) /gene="Art4019040" /number=7,7736017399)	/gene="AT4g19040" /number=7 complement(17400	/gene="AT4919040" /number=8	INCION COMPLEMENT(1/02/1//48) /gene="A14g19040" /number=8	exon	intron	exon	intron complement(1823)18523)	exon	intron complement(1862018907) /gene="AT4g19040"

3073

us-09-914-001-1.rge

/product="chromomethylase 3"

```
/note_mcontype: Wassilewskija"
/note_mcotype: 322,362. 399,487. 589,1104. .1211,1298. .1417,
1521. .1620,1732. .1940,2030. .2095,2172. .2429,2522. .2580,
2653. .2729,2962. .3291,3369. .3437,3507. .3593,3682. .3769,
3877. .3992,4099. .4203,4283. .4326,4423. .4492,4646. .4749,
4847. .55009)
/product="chromomethylase CMT3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          join17. 232,362. 399,487. .589,1104. .1211,1298. .1417, 1511. . 1620,1732. .1940,2030. .2095,2172. .3429,2522. .580, 2663. .2729,2962. .3291,3369. .3437,3507. .3593,3682. .3769, 3877. .3992,4099. .4203,4283. .4326,4423. .4492,4646. .4749, 4847. .5009)
//gene="command: command: comm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    thale cress.

Arabidopsis thaliana

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnollophyta; eudicoryledons; core eudicots;

Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.

( thases I to 5025)

Bartee, L., Malgnac, F. and Bender, J.

Arabidopsis cmt3 chromomethylase mutations block non-CG methylation and silencing of an endogenous gene
Genes Dev. 15 (14), 1753-1758 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AF383170 5025 bp DNA linear PLN 10-JAN-2002 Arabidopsis thaliana chromomethylase CMT3 (CMT3) gene, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2 (bases 1 to 5025)
Bartee, L., Malagnac, F. and Bender, J.
Direct Submission
Direct Submission
Bender, J.
Direct Submission
Biochemistry and Molecular Biology, Johns Submitted (18 MAY-2001) Biochemistry and Molecular Biology, Johns Submitted (18 MAY-2001) Biochemistry and Molecular Biology, Johns St., Baltimore, MD 21205, USA
On Jan 10, 2002 this sequence version replaced gi:14583091.
Location/Qualifiers
1. -5025
/organism="Arabidopsis thaliana"
//db_reconcorrections.
                                                                                                                                                                                                                                                    1696 aaatttgcggatggttacctaggaaaatatgctttgagctgccttgttgctatgaagtac 1755
                                                                                                                                                                                                                                                                                                                                                                   caagogoggottggaatgatggtggctggttgctatggtctgccacagttcaggatgcgt 1815
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3194 CAAGTGAGGAATGGAATGATGACAGCTGGACTTATGGGCTTGCTCAGTTTGTTGAGG 3253
gatattgtggcgtacttgaagcccaagtatgttctcatggaaaatgtggtggacatactc 1695
                                                                                                                               GI:18105176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <17. .>5009
/gene="CMT3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF383170
AF383170.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1756
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 14
AF383170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                       δ
                                                                                                                                                g
                                                                                                                                                                                                                                                              Q
                                                                                                                                                                                                                                                                                                                                                                                    d
                                                                                                                                                                                                                                                                                                                                                                                                                                                       δŏ
                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                  ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δy
                                                                                join(1. .216,346. .383,471. .573,1087. .1194,1281. .1400,
1504. 1163,1724. .1932,203. .2088,2164. .3421. .2514. .2572,
255. .2721,2554. .3283,3361. .3429,3499. .3585,3674. .3761,
3869. .3984,4091. .4195,4275. .4318,4415. .4484,4638. .4741,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PYDTERAIQUETRIANAISESSTISSDTDIREGRAAISEIGECSQETEGRCRATLLDLYG

GCGAMSTGLCMGAQLSGLMLVTKWAVDMNARACKSLCHNIPETRVRNAWTAEDELELLB

BWEKLCITHYSLRNSPINSEPTAILDLYGENAVDMNARACKSLCHNIPETRVRNAWTAEDELELLB

BWEKLCITHYSLRNSPINSEPTAILDLYGENAVGEKIGEFWEGYREDELLLB

GVPKKLLKRROLYLKWIMINYDDSHDTWEDIEGLSNORGKIGEFWEGYREGYREGYE

VDVVCGGEPPECGTISGHNRFRULLDPLEDQKRKOLLVYMNIVETIKFRYLMRENVDMI

KMAKGYLARPAVGRLLOMNYQVRNOMMAAGAYGLAGYFRFPLMGALPSEIIPOPPLP

THDLVHRGMIYVEREGGNIVAYDBGHYWLAGKLLIKDYISDLPAYNANSERRDETTYD

DPTTPPPQRT TRLRKDEAGSGSKSKSKKHVIYDHPLINLNINDYERVCQVPKRKGANF

RDFPQLYUGPGNVVKLESGKRIVESGRTLYPPYALTYVOKSCKRFGRINMOEIVP

TVVTRAEPHWOYITHPEQNRVLSIRESGRTLVPPYALTYVOKSCKRFGRINMOEIVP

TVVTRAEPHWOYITHPEQNRVLSIRESMRILGSFPDDYRLEGPPROKXIQVGNAVAVVV
                                                                                                                                                                                                                                                                                                                                                                                                               KHYARFUDEP PESEAKSYWPDRYKPIEVOPPKASSRKKTKDDEKVEITAARCHYRRA
IVDERQIYELNDDAYVQSGEGKDPFICKIIEMFEGVNGKLYFTARWFYRPSDTVMKEF
EILINKKRVFFSEIQDTNELGLLEKKLNILMIPLNENTKETIPATENCDFFCDMNYFL
                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1516 ggtgatgttgatgtcatttgtggaggcccaccatgccaaggtatcagtgggtttaatcgg 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 4999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Match 5.6%; Score 154.4; DB 8; Local Similarity 67.3%; Pred. No. 4.8e-16; les 218; Conservative 0; Mismatches 106;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="CMT3"
/allele="cmt3-11"
/replace="a"
4672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1054 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="CMT3"
/allele="cmt3-10"
/replace="a"
3231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /allele="cmt3-4"
/replace="a"
4319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="CMT3"
/allele="cmt3-7"
/replace="t"
502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="CMT3"
/allele="cmt3-9"
/replace="a"
3018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /allele="cmt3-8"
/replace="t"
4690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="CMT3"
/allele="cmt3-3"
/replace="a"
a 802 c 1054 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="CMT3"
/allele="cmt3-6"
/replace="a"
4306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /allele="cmt3-5"
/replace="t"
2551
                       'gene="CMT3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="CMT3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="CMT3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                              gene
                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δλ
```

```
Genes were identified by a combination of several methods: Gene prediction programs including Genscan+ (Chris Burge, http://CCR-081.mit.edu/GENSCAN.html), GeneMarkHWW (Mark Borodovsky, http://genemark.biology.gatech.edu/GeneMark/), GlimmerA (a variant of GlimmerA, see Mihaela Pertea.

http://www.tigr.org/softlab/glimmerm_html, GlimmerA (a variant of GlimmerA, see Mihaela Pertea and Steven Salzberg, contact mpertea@tigr.org), searches of the complete sequence against a peptide database and the plant EST database at TigR (http://www.tigr.org/tdb/tdi.shtml). Annotated genes are named to indicate the level of evidence for their annotation. Genes with similarity to other proteins are named after the database hits. Genes without significant peptide similarity but with EST similarity are named as unknown proteins. Genes without protein or EST similarity. that are predicted by more than two gene prediction programs over most of their length are annotated as hypotherical proteins. Genes encoding tRNAs are predicted by tRNAscan-SE (Sean Eddy, http://genome.wistl.edu/eddy/tRNAscan-SE). Simple repeats are identified by repeatmasker (Arian Smit, Localton/Qualifiers)

l. ENTABLE CONTROLED CO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="100.23.1
// Acte="similar to protein kinase APKIA GB:006548
[Arabidapsis thallana]; contains Pfam profile: PF00069
Eukaryotic protein kinase domain.
Eukaryotic protein kinase domain.
Eukaryotic protein kinase, 3164,3263. 3398,
a799. 3853)
/gene="100.21"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 //note="identical to homeobox gene 13 protein
gb|AAF20996.1|AF208044_1 [Arabidopsis thaliana]"
complement(join(10437. .10802,11137. .11519,11601. .11736)
/gene="T6C23.2"
Submitted (06-NOV-1999) The Institute for Genomic Research, 9712 Medical Center Dr. Rockville, MD 20850, USA, xlin@tigr.org 3 (Dases I to 87148)

Town,C.D. and Kaul,S.
Direct Submission
Submitted (19-JAN-2001) The Institute for Genomic Research, 9712 Medical Center Dr. Rockville, MD 20850, USA, cdtown@tigr.org Address all correspondence to:at@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                            BAC clone T6C23 is from Arabidopsis thaliana chromosome 1 The orientation of the sequence is from SP6 to T7 end of the BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="overlap with BAC clone T17F3
[AC010675:82446. .84723]."
complement(join(<2084. .2572,3034. .3164,3263. .3398,
3479. .3853)]
/gene="T6C23.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Arabidopsis thaliana"
/cultivar="Columbia"
/db_xref="taxon:3702"
/chromosome="1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="T6C23.2"
complement(10437. .11736)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement(2084. .3853)
/gene="T6C23.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /clone="r6C23"
1. 2278
/note="overlap v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                      AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                   COMMENT
                                                                                                                                                                                                                            /translation="MapkrkrPatkDDTKSIPkPkKRApkraktvkEepvtvveege
KHVARFLDEPIPESEAKSTWPDRYKPIEVQPPKASSRKKTKDDEKVEIIRARCHYRRA
IVDERQIYELNDDAYVQSGEGKDPFICKIIEMFEGANGKLYFTARWFYRPSDTVMKEF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       thale cress.

Arabidopsis thaliana

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnollophyta; eudicotyledons; core eudicots;
Rosidae; euroslads II; Brassicales; Brassicaceae; Arabidopsis.

1 (bases 1 to 87148)
Lin,X., Kaul,S., Town,C.D., Benito,M.-I., Creasy,T.H., Haas,B.J.,
Wu,D., Malti,R., Ronning,C.M., Roo,H., Pulji,C.Y., Utterback,T.R.,
Barnstead,M.E., Bowman,C.L., White,O., Nierman,W.C. and Frascr,C.M.,
Arabidopsis thallana chromosome 1 BAC 76C23 genomic sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1636 gatattgtggcgtacttgaagcccaagtatgttctcatggaaaatgtggtggacatactc 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1516 ggtgatgttgatgtcatttgtggaggcccaccatgccaaggtatcagtgggtttaatcgg 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1696 aaatttgoggatggttacctaggaaaatatgctttgagctgccttgttgctatgaagtac 1755
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3022 TICAGGAACTIATIGGACCCICTAGAAGAICAGAAAAACAAGCAGCITITIGGIGIGIATATG 3081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3082 AACATTGTAGAATATTTGAAGCCTAAGTTCGTTTTGATGGAAAACGTCGTTGACATGCTG 3141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 5.6%; Score 154.4; DB 8; Length 5025; Best Local Similarity 67.3%; Pred. No. 4.8e-16; Matches 218; Conservative 0; Mismatches 106; Indels 0;
        /product="chromomethylase CMT3"
/protein_id="AAK69756.1"
/db_xref="GI:14583092"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1816 gtgttcctctggggtgctctttct 1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3262 TTCTTTCTATGGGTGCACTCCCT 3285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AC013289.11 GI:12325182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1 to 87148)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 (bases 1 to 8714
Lin, X. and Kaul, S.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AC013289
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORIGIN
```

Ob ŏ οp

ò g δ පු ò g ö g οý

```
// protein_id="AAG52549.1"

/brotein_id="AAG52549.1"

/bb_xref="G1:12325198"

/bb_xref="G1:12325198"

/ranslaton="MATPIENASCSFPSTRGIDCKSYIGLRSNVSKVSVASSRIATS

/RANSLAGGGARKLGMSDAECEAAVAGNVPEAPPPPRPAPVCTPIIKPL

NLSRRPRRNRASPVTRAAFGETDISPANFVYPLFIHEGEEDTPIGAMPGCYRLGWRHG

LVGEVARAAVGNSIVLEPKYPEALKNSFGDEATNDNGLVPFFIRLLLKOKFPDLIIT

TUVALDEPKSDGGHGTYREDGVINNDETVNGLGKQAVSGARGADVVSESDAMDGRVG

ATRSALDABGTONVSIMSTYRAKJASSFVGPFREALDSNPRFGDKKTYCMNRANTREAL

IEAREDEAGGONVSIMSTYRAKJASSFVGPFREALDSNPRFGDKKTYCMNRANTREAL

IEAREDEAGGONJLLVKPGLPYLDIIRLLRDKSPLPIAAYQVSGFSMIKAGGVLKMI

DERKVMBSLACLRRAGADIILTYFPLQAATCLGGEKR"

/Gene="TGC23"

/Gene="TGC23"

/ 39563"

- 42270

/ 39563"

- 42270
             /translation="MargdareGGNRGLRPIPPEKGIFPLDHLHECDAEKKEYLGCLKS
SAHKESCORPLSKKILOCRAAKULMARGDMAELGFGGVKENFESTEH"
complement(join(346189. 36356,36445. 36522,36595. 36676
36762. 36833,36911. 37032,37120. 37175,37246. 37315,
37408. 37491,37574. 37642,37723. 37796,37881. 37992,
38400. ,384705.)
/gene="T6C23.6"
/gene="T6C23.6"
/gene="T6C23.6"
/gene="T6C3.6"
/gene="T6C3.6"
                                                                                                                                                                                                                                                                                                                                                                                                     [Lycopersicon esculentum]"
complement()oln(36189. 36356,36445. 36522,36595. 36676,
complement()oln(36189. 36356,37120. 37175,37246. 371315,
37408. 37421,37574. 37642,37723. 37796,37881. 37992,
38400. 38705)
/codon.safate...
/rocdon.statte...
/product="putative aminolevulinate dehydratase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1756 caagegeggettggaatgatggtggttgctatggtctgccacagttcaggatgcgt 1815 | 111 | 1 | 1 | 1 | 1 | 1 | 1 | 20599 caagtGaarGaarGcacGcacGcTagGCTTATGGCTTCCTTTCGTTTGAG 20658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1636 gatattgtggcgtacttgaagcccaagtatgttctcatggaaaatgtggtggtggacatactc 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1696 aaatttgcggatggttacctaggaaaatatgctttgagctgccttgttgctatgaagtac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 5.6%; Score 154.4; DB 8; Length 87148; Best Local Similarity 67.3%; Pred. No. Se-16; Matches 218; Conservative 0; Mismatches 106; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              completed: July 15, 2002, 10:52:12
he: 8649 sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      20659 TTCTTTCTATGGGTGCACTCCCT 20682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1816 gtgttcctctgggggtgctcttct 1839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="T6C23.7"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Search com
Job time:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                mRNA
                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ωp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           õ
/product="homeobox gene 13 protein; 11736-10437"
/product="homeobox gene 13 protein; 11736-10437"
/product="homeobox gene 13 protein; 11736-10437"
/protein_id="Ana52541.1"
/db_ref="fer:12225190"
/db_ref="fe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   areness]"

join(17383..17598,17728..17765,17883..17995,18500..18607,
186694..18813.18917..20016,19128..19336,19427..19492,
196694..18813.18917..20016,19128..19336,19427..19492,
19569..19826.19919..19977,20060..20126,20359..2048,
20146,.22044..22406,
20146..2014.2004..20990.21079..21166,21274..21389,
21496..21600,21680..21723,21820..21889,22043..22146,
22244..22406..2233"

/codon_start=1
/product="putative chromomethylase; 17383-22406"
/product="putative chromomethylase; 17383-22406"
/product="putative chromomethylase; 17383-22406"
/product="putative chromomethylase; 17383-22406"
/prodeIn_id="AAG52343."
/db_xref="c1:12325192"
/prodeIn_id="AAG52343."
/db_xref="c1:12325192"
/prodeIn_id="AAG52343."
/db_xref="c1:12325192"
/prodeIn_id="AAG52343."
/db_xref="c1:12325192"
/prodeIn_id="AAG52343."
/db_xref="c1:12325192"
/prodeIn_id="AAG52348."
/db_xref="c1:12325192"
/prodeIn_id="AAG52348."
/db_xref="c1:12325192"
/prodeIn_id="AAG52344"
/db_xref="c1:12325192"
/db_xref="c1:12325192"
/prodeIn_id="AAG52344"
/db_xref="c1:12325194"
/db_xref="dil"
/product="unknown protein; 30275-30808"
/dene="T6C23-4"
/db_xref="c1:12325194"
/d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17383. 22406
/gene="T6C23.3"
/note="similar to chromomethylase GB:AAB95486 [Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement(join(<33586 .33685,33811. .33908,33995. .34083,3451. .>34550)
34541. .>34550)
\gamma=""r60735.5"
complement(33586 .34550)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="predicted by genefinder"
/note="predicted by genefinder"
34541. 34550)
/gene="f6C23.5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/product="hypothetical protein; 34550-33586"
/protein_id="AAG52547.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      edeaany ytlloselfm"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                      mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
```

·			
		,	•

Perfect score:

Run on:

Scoring table: Sequence:

Searched:

Database

```
Anti-sense strand Vector plasmid pow Vector plasmid pow Vector plasmid pow Vector plasmid poweror plasmid poweror plasmid polisEBON i Partial mouse WRN Spartial mouse WRN Epstein Barr Virus Human immune/haema DNA encoding novel Warboxie sequenc KSHV LOR DNA (nucleotide sequenc Human bone marrow Nucleotide sequenc Human herpesvirus Nucleotide sequenc Sugar beet chitina Musce Statian SBS C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Maize; corn; zmet2a; DNA methyltransferase; cytosine-5-methyltransferase; DNA methylation; marker-aided selection; chromosome segregation; DNA fingerprinting; gene therapy; trinucleotide repeat; ss.
     Nucleotide sequenc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zea mays zmet2a methyltransferase coding sequence #1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAF82901
AAV73805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV73805
AAV19941
AAK19599
AAK45604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAK06682
AAK32380
AAV33277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAV33278
AAD25519
AAD25519
AAH74202
AAQ29965
  AAA75454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "zmet2a #1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
1..2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAA95233 standard; cDNA; 2736
  10-MAR-2000; 2000WO-US06456.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag= a
/product= '
/partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                  7.7 33923

6.6 1527

6.6 1527

6.6 1527

6.6 13489

6.6 32489

6.7 1281

7.7 1281

7.8 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9 1281

7.9
2580
8452
8452
8452
10380
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
10596
1059
  \sigma\sigma\sigma\sigma\sigma\sigma\sigma\sigma\sigma\sigma\sigma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200053732-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                      700.6
700.6
700.6
700.6
699.6
699.6
699.2
699.2
699.2
699.2
699.6
699.2
699.2
699.2
699.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAA95233;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Zea mays
  78.
78.
78.
78.
78.
778.
74.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT
AAA95233
  (without alignments)
11050.289 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zea mays zmet2a me Zea mays zmet2a me Zea mays zmet2b me Zmet2b me Zmet2a methyltrans Arabidopsis thalia FLGA insert stabil Nucleotide sequenc Epstein Barr virus EBV tethering prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Name | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                             1 atggcgccgagctccccgtc......agggggaggtagttgagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                                                               July 15, 2002, 09:12:48; Search time 425.1 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3472872
                        GenCore version 4.5
Copyright (c) 1993 - 2000 Compugen Ltd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                 1736436 seqs, 858457221 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                              OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAA95233
AAA95234
AAA95275
AAA95272
AAS15381
AAS15381
AAV55830
AAV55831
AAA50254
                                                                                                                                                                                                                                                                                                                                                           IDENTITY_NUC Gapox 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N_Geneseq_032802:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                221221221222
                                                                                                                                                                                                                                                     US-09-914-001-1
2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DΒ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2736
2796
1181
12810
520
795
795
1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        100.0
22.5
17.1
5.6
3.0
2.9
2.9
```

112: 113: 114: 117: 117: 119: 120: 22: 23:

.. 9

(WISC ) WISCONSIN ALUMNI RES FOUND.

99US-0123888 99US-0169858

11-MAR-1999; 09-DEC-1999;

2736 2736 616.4 466.8 154.4 83.2 81.2 78.6

0 m 4 m 6 m 6 m 6

Score

Ñ.

Result

9 720 720 780 780 840 840 900 900 960 960

660

Jul

```
gtggtggacatactcaaatttgcggatggttacctaggaaaatatgctttgagctgcctt 1740
                                                                                                                     acttgccgttggttcttccgagcagaggacacggttatcaattctttggtgtccataagt
                                                                                         gcaacccttcttgatctgtattctggctgtggggggatgtctactggtctttgcttgggt
                                                                                                                                                                                                                        tttcttgccctccttaaggaatgggcagttctatgcaaaaaatatgtccaagatgtggat
                                                                                                                                                                                                                                                                                                               giggatggccacaagcaigaccciagacgigtitititititigaggaaaagaacgacaat
                                                                     tattttaaggtccagtgggaaggatacggccctgaggaggatacatgggaaccgattgat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       agtgggtttaatcggtacagaaaccgtgatgagccactcaaagatgagaaaaacaa
                                                                                                        781
                                                                                                                                      841
                                                                                                                                                                                                               1021
                                                                                                                                                                                                                              1021
                                                                                                                                                                                                                                              1081
                                                                                                                                                                                                                                                           1081
                                                                                                                                                                                                                                                                                         1141
                                                                                                                                                                                                                                                                                                       1201
                                                                                                                                                                                                                                                                                                                     1201
                                                                                                                                                                                                                                                                                                                                     1261
                                                                                                                                                                                                                                                                                                                                                   1261
                                                                                                                                                                                                                                                                                                                                                                  1321
                                                                                                                                                                                                                                                                                                                                                                                1321
                                                                                                                                                                                                                                                                                                                                                                                                1381
                                                                                                                                                                                                                                                                                                                                                                                                             1381
                                                                                                                                                                                                                                                                                                                                                                                                                                           1441
                                                                                                                                                                                                                                                                                                                                                                                                                                                          1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1681
                601
                                            661
                                                            721
                                                                           721
                                                                                           781
                                                                                                                       841
                                                                                                                                                                                  961
                                                                                                                                                                                                961
                              661
                                                                                                                                                    901
                                                                                                                                                                  901
                                                                                                                                                                                                                         0 y
                                                                                                                                                                                                                                                                                                                               Q
Dp
                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ω
             qq
                           δ
                                         QQ
                                                         ŏ
                                                                        g
                                                                                        δ
                                                                                                    g
                                                                                                                    οχ
                                                                                                                                  g
                                                                                                                                                 9
9
                                                                                                                                                                             O.Y
Db
                                                                                                                                                                                                            δλ
                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                    Qy
Db
                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                       ö
                                                                                                              The present sequence is one version of the coding sequence for the maize cytosine-5-methyltransferase zmet2a. The protein encoded by this sequence is involved in the methylation of DNA, which is necessary for normal development in plants and animals. The sequence, protein, antibodies and antisense sequences can be used in the production of transgenic plants with altered levels of DNA methylation, in gene silencing, in marker-aided selection, to follow chromosome segregation, and to DNA fingeprint class II DNA methyltransferases in other plants. In addition, they can be used in gene therapy to treat human diseases caused by trinucleotide repeat amplification.
                                                              Zea
                                                                                                                                                                                                                                                                                  240
                                                                                                                                                                                                                                                                                                                                                                          300
                                                                                                                                                                                                                                                                                                                                                                                        300
                                                                                                                                                                                                                                                                                                                                                                                                                      360
                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             900
                                                                                                                                                                                                                                                                                                                                                                                                       gagcaggccatgcaggaggaggtggttgcggtcgcggggggtcacccgggaagaagagg 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            009
                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                  09
                                                             oŧ
                                                                                                                                                                                                                                                                                                               atggcgccgagctccccgtcacccgccgcctacacgcgtctctgggcggaagcgcgcc
                                                                                                                                                                                                                                                                                                                                                                          gacgtgtgcgccgaggaggcccgacgacgaggaggagttggccatgggcgaggaggaggaggagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                methyltransferase nucleic acid sequences of transgene expression, altering yield or and silencing targeted genes in transgenic
                                                                                                                                                                                                                                                                    atggcgccgagctccccgtcacccgccgcctacacgcgtctctgggcggaagcgcgcc
                                                                                                                                                                                                                                                                                                                                                                                         gacgtgtgcgccgaggagcccgacgaggaggagttggccatgggcgaggaggaggccgag
                                                                                                                                                                                                                                                                                                                                                                                                                       gagcaggccatgcaggaggaggtggttgcggtcgcggggggtcacccgggaagaagagg
                                                                                                                                                                                                                       2736;
                                                                                                                                                                                                                                     ;
                                                                                                                                                                                                                       21; Length
                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                Sequence 2736 BP; 684 A; 628 C; 802 G; 622 T; 0 other;
                        S
                                                                                                                                                                                                                                     ;
                        Papa
                                                                                                                                                                                                                        DB
                                                                                                                                                                                                                      s; Score 2736; L
s; Pred. No. 0;
0; Mismatches
                        ₩Ġ,
                        Muszynski
                                                                                                 Claim 2; Fig 1A; 103pp; English
                                                                                                                                                                                                                      Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 2736; Conservative 0;
  INI
                        Ä,
                                                                     mays used for stabilizing t
biochemical qualities, and
                                                            Novel zmet2a and zmet2b
mays used for stabilizin
 HI-BRED
                        Kaeppler SM, Springer
          UNIV MINNESOTA
                                     WPI; 2000-587430/55.
P-PSDB; AAB26242.
 PIONEER
                                                                                  plants
                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                      301
                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                       301
 g
                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                     οy
                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                   qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                               QΛ
                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                       Dp
                                                                                                                                                                                                                                                                                                                                                                                                    δy
                                                                                                                                                                                                                                                                                                                                                                                                                                    Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
```

1140

1020

1080 1080 1140

1200 1200 1260 1260 1440 1440 1500

1500

1560

1380

1380

```
2460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2160
                                                                                                                                                                                                                                                                         2220
                                                                                                                                                                                                                                                                                                                                             atcaagggcaaatcactcaagccgtttgggcgcctgtggtgggacgagacagttcctaca 2400
                                                                                                                                                                                                                                                                                                                                                                                                2341 atcaagggcaaatcactcaagccgtttgggcgcctgtggtgggacgagacagttcctaca 2400
                                                                                                                                                                                                                                                                                                                                                                                                                  ctgggctactgtctggggcaagcctacctgggtgaatctgaggggagtgaccctctgtac 2640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cagetgeetecaagttteacetetgttggaggaegeaetgegggggaggeggggeetet 2700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2641 cagetgeetecaagttteacetetgttggaggaegeactgeggggeaggegagggeetet 2700
                                    cggcttaacaacgatgattatgagcgggttcaacagattcctgtcaagaagggagccaac 2220
                                                                                                                                                                 2161 eggettaacaacgatgattatgagegggtteaacagatteetgteaagaagggagecaae
                                                                                                                                                                                                                                                                                                            ttocgcgacctaaagggcgtgagggttggagcaaacaatattgttgagtgggatccagaa
                                                                                                                                                                                                                                                                                                                    1681 gtggtggacatactcaaatttgcggatggttacctaggaaaatatgctttgagctgcctt
                          1741 gttgctatgaagtaccaagcgcggcttggaatgatggtggctggttgctatggtctgcca
                                                            caqttcaggatgcgtgtgttcctctggggtgctctttcttccatggtgctccctaagtat
                                                                                                                                 atggttgcatatgacgagacacaaaaaccatccctgaaaaaagccttgcttcttggcgat
                                                                                                                                                 1921 atggttgcatatgacgagacacaaaaaccatccctgaaaaaagccttgcttcttggcgat
                                                                                                                                                                                                                                       tggtccttcggtgagggggctggtccagatgaaggcaagctcttggatcaccagccttta
cctgttggcacccctgcaggggaggtagttgagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2101
                                                                                                                                                                                                                                                                                         2161
                                                                                                                                                                                                                                                                                                                                                                               2341
                                                                                                                                                                                                                                                                                                                                                                                                                                   2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2701
                                                                                                                                                                                                                                      2101
                                                                                                                                                                                                                                                                                                           2221
                                                                                                                                                                                                                                                                                                                                                                                                                  2401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2701
                                                                                                                                 1921
                                                            1801
                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                         δŽ
                                                                                                                                                                                                                                                                                      Q
                                                                                                                                                                                                                                                                                                          ŏ
                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                          ογ
                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                             δλ
                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οŽ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
         g
                                          g
                                                                          Dp
                                                                                                            qq
                                                                                                                               ΟŊ
                                                                                                                                             qq
                                                                                                                                                                δy
                                                                                                                                                                                 QQ
                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                     Óλ
                          ð
                                                             οy
                                                                                             QΥ
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present sequence is one version of the coding sequence for the maize cytosine-5-methyltransferase zmet2a. The protein encoded by this sequence is involved in the methylation of DNA, which is necessary for normal development in plants and animals. The sequence, protein, antibodies and antisense sequences can be used in the production of transgenic plants marker-aided selection, to follow chromosome segregation, in marker-aided selection, to follow chromosome segregation, and to DNA fingerprint class II DNA methylation, in gene silencing, and to DNA addition, they can be used in gene therapy to treat human diseases caused by trinucleotide repeat amplification.
                                                                                                                       Maize; corn; zmet2a; DNA methyltransferase; cytosine-5-methyltransferase; DNA methylation; marker-aided selection; chromosome segregation; DNA fingerprinting; gene therapy; trinucleotide repeat; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Novel zmet2a and zmet2b methyltransferase nucleic acid sequences of Zea mays used for stabilizing transgene expression, altering yield or biochemical qualities, and silencing targeted genes in transgenic
                                                                                                                                                                                                                                                         /transl_except= (pos:2767...2769,aa:xaa)
/note= "this sequence contains an in-frame stop codon represented by xaa in the protein sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 2796;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2796 BP; 701 A; 645 C; 820 G; 630 T; 0 other;
                                                                                              Zea mays zmet2a methyltransferase coding sequence #2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Papa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ilarity 100.0%; Score 2736; ilarity 100.0%; Pred. No. 0; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Muszynski MG,
                                                                                                                                                                                                                                                   "zmet2a #2"
                                                                                                                                                                                                      Location/Qualifiers
1..2796
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (WISC ) WISCONSIN ALUMNI RES FOUND. (PION-) PIONEER HI-BRED INT INC. (MINU ) UNIV MINNESOTA.
               BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 4; Fig 1B; 103pp; English.
             AAA95234 standard; cDNA; 2796
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Springer NM,
                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0123888.
                                                                                                                                                                                                                                                                                                                                                                                        10-MAR-2000; 2000WO-US06456
                                                                                                                                                                                                                                     /*tag= a
/product= '
                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
Matches 2736; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2000-587430/55.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P-PSDB; AAB26243.
                                                                                                                                                                                                                                                                                                                                   WO200053732-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kaeppler SM,
                                                                                                                                                                                                                                                                                                                                                                                                                    11-MAR-1999;
09-DEC-1999;
                                                                     21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                              14-SEP-2000.
                                           AAA95234;
                                                                                                                                                                                  Zea mays
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ŏ
```

qq	91	$\mathfrak{g}_{ccaaggccgaggagatccaccagaacaaggaggaggaggaggaggaggcgtcc}$	0
QY Db	121	tecgecaagegeageegeaageggeatetteegggaagaageecaagtegeeeceaag 18	0 0
δ	ω	aggccaagccggggaagaagaaggggatgccgagatgaaggagccgtggaggac 2	. 0
Dp	211	caggccaagccggggaggaagaagaagggggatgccgagatgaaggagcccgtggaggac 27	0
ۇ <u>ۋ</u>	241	gacgtgtgcgccgaggagcccgacgaggagttggccatgggcgaggaggaggccgag 30	0 0
Q Q	301	gagcaggccatgcaggaggaggtggttgcggtcgcgggggggtcacccgggaagaagagg 36. 	0 0
Oy Db	361	gtggggagaaggaacgccgccgccggcggcgaccacgagccggagttcatcggcagc 42 [[[[[]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]]	0 0
Qy Db	421	cctgttgccgcggacgacgcgcagcaactggcccaagcgctacggccgcagcactgcc 48	0 0
Oy Dp	481	gcaaaàaaaccggatgaggaggaaggtcaaggccagatgtcactaccggagcgctaag 54 	0 0
Qy Dp	541	gtggacaacgtcgtctactgcctcggggatgacgtctatgtcaaggctggagaaaacgag 60	0 0
oy Dp	601	gcagattacattggccgcattactgaattttttgagggactgaccagtgtcactattt 66	0 0
Q Q	661	acttgccgttggttcttccgagcaggacacggttatcaattctttggtgtccataagt 72 	0 0
Q7 07	721	gtggatggccacaagcatgaccctagacgtgtttttctttc	0 0
Qy Dp	781	gtgcttgattgcattatctccaaggtcaagatagtccatgttgatccaaatatggatcca 84	0 0
λ Q	841	aaagccaaggctcagctgatagagagttgcgacctatactatgacatgtcttactctgtt 90	0 0
QY Dp	901	gcatattctacatttgctaatatctcgtctgaaaatgggcagtcaggcagtgataccgct 96 	0 0
QY Db	961	togggtattttttttttgatgatgtggatotggagacgtoatotagtatgocaacgaggaca 10 	20
Oy Dp	1021 1051	gcaaccettettgatetgtattetggetgtgggggcatgtetaetggtetttgettggt 101	80 10
Oy Dp	1081	gcagetetteetggettgaaacttgaaactegatgggetgttgattteaacagttttgcg 11	40
QQ Dp	1141	tgccaaagtttaaaatataatcatccacagactgaggtgcgaaatgagaagccgatgag 12 	30

δy	1201	ttcttgccctccttaaggaatgggcagttctatgcaaaaaatatgtccaagatgtgga
qq	1231	
οy	1261	caagctcagaggatcaagcggatgaagacagcctcttgacaa
qq	1291	caaatttagcaagctcagaggatcaagcggatgaagacagccctcttgacaaggacg
οy	1321	38
Ωp	1351	tigitigiagaagattgicgggatatgitatggiggcagigacagggaaaatggcatc 141
δy	1381	atacatgggaaccgattgat 144
QQ	1411	attttaaggtccagtgggaaggatacggcctgaggagatacatgggaaccgattgat 147
οy	1441	Lgagtgactgcccgcagaaaattagagaattgta
qq	1471	acttgagtgactgcccgcagaaaattagagaatttgtacaagaagggcacaaaaagaaag
δλ	1501	Loccactgootgtgatgttgatgtcatttgtgga
qq	1531	ttotoccactgootggtgatgttgatgtcatttgtggaggoccaccatgccaaggtat
οy	1561	tgggtttaatcggtacagaaaccgtgatgagccactcaaagatgagaaaaacaaac
Ωp	1591	gtgggtttaatcggtacagaaaccgtgatgagccactcaaagatgagaaaaacaaaaaaaa
ογ	1621	gtgactttcatggatattgtggggtacttgaagcccaagtatgttctcatg
οp	1651	tggtgactttcatggatattgtgggggtacttgaagcccaagtatgttctcatggaaat 171
δy	1681	tggtggacatactcaaatttgcggatggttacctaggaaaatatgctttga
qq	1711	atactcaaatttgcggatggttacctaggaaatatgctttgagctgcctt 177
οy	1741	tatgaagtaccaagcgcggcttggaatgatggtggc
QQ	1771	tigctatgangtaccangcgggggttggantgatggtggttggttggtatggtctgcca 183
δλ	1801	caggatgcgtgtgttcctctggggtgctcttcttccatggtgctccctaagta 186
QQ	1831	agttcaggatgcgtgtttcctctgggggtgctctttcttccatggtgctccctaagtat
Qy	1861	gcccacctatgatgtgtgtagtacgtggaggagccctaatgcctttcgcaatgt 192
QQ	1891	ctctgcccacctatgatgttgtagtacgtggaggagcccctaatgccttttcgcaatgt 195
οy	1921	ttgcatatgacgagacacaaaaaccatcctgaaaaaagccttgcttcttggcgat 198
Dp	1951	tggttgcatatgacgagacacaaaaaccatccctgaaaaaagccttgctcttggcga
οy	1981	ttcaaaatcaccagcctaacgatgtgatggagtatggt 204
Ωp	2011	caatttcagatttaccaaaggttcaaaatcaccagcctaacgatgtgatggagtatgg
δỳ	2041	gttccccaagacc
QΩ	2071	tececcaagaecgaattecagegetacattegaeteagtegtaaagaeatgttgga
Qy	2101	gtccttcggtgagggggctggtccagat
qq	2131	ggtccttcggtgagggggctggtccagatgaaggcaagctcttggatcaccagccttt
οy	2161	gcttaacaacgatgattatgagcgggttcaacagattcct
qq	2191	ggottaacaacgatgattatgagcgggttcaacagattcctgtcaagaagggagccaa
ολ	2221	ttgagtgggatccagaa 228
d Q	2251	tecycyacetaaagggcgtgagggttggagcaaacaatattgttgagtgggatecaga

us-09-914-001-1.rng

δλ

δ g δŻ g ŏλ g ã q δλ g ŏ g δ g Zea Key

NO SECTION OF SECTION

```
this sequence
                                                                                                                                                     The present sequence is one version of the coding sequence for the maize cytosine-5-methyltransferase zmet2b. The protein encoded by this sequence is involved in the methylation of DNA, which is necessary for normal development in plants and animals. The sequence, protein, antibodies and antisense sequences can be used in the production of transgenic plants with altered levels of DNA methylation, in gene silencing, in marker-aided selection, to follow chromosome segregation, and to DNA fingerprint class II DNA methylations ferases in other plants. In addition, they can be used in gene therapy to treat human diseases caused by trinucleotide repeat amplification.
     Zea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtgagggttggagcaaacaatattgttgagtgggatccagaaatcgagcgtgtgaaatt 2298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     attcaagtcgggaacgcagtggctgtccctgttgcccgggcactggggctactgtctgggg 2598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1999 aaggitcaaaaatcaccagcctaacgatgtgatggagtatggtggttcccccaagaccgaa 2058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        525 gcaaggttacagggcttccccgattactaccgattgtttggaccgatcaaggagagtat 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
Novel zmet2a and zmet2b methyltransferase nucleic acid sequences of mays used for stabilizing transgene expression, altering yield or blochemical qualities, and silencing targeted genes in transgenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               tatgagcgggttcaacagattcctgtcaagaagggagccaacttccgcgacctaaaggggc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gtcaaggttggagcaaataatgttgttgagtgggatccagaagtcgaacgtgtgtacctt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      aagccgtttgggcgcctgtggtggtggacgagacagttcctacagttgtaaccagagcagag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aagccattcgggcgcctgtggtgggaccagacggttcctacagttgtgaccagagcagag
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cctcacaaccaggttataattcatccgactcaagcaagggtcctcactatccgggagaac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gcaaggttacagggcttccccgattactaccgattgtttggcccgatcaaggagaagtac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 616.4; DB 21; Length 1181;
Pred. No. 2.2e-135;
); Mismatches 66; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1181 BP; 307 A; 261 C; 313 G; 300 T; 0 other;
                                                                                                               Example 2; Fig 23; 103pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 22.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
```

1;

셤 ă g

```
// Cougham and PaceRT" | Drimers RacelB and RaceRT" | 11756.11775 | Ataga aj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= ah
// Abound_molety= "primers RacelA and 4F"
complement (11019..11059)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /*tag= ad /*tag= ad /*tag= ad /*tag= ae /*tag= ae //bound_moiety= "primer IF" | 10897.10923 | /*tag= af //bound_moiety= "primwer Race2A" | complement (10897.10923)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           / Lobund_molety= "primer Seq2RN"

complement (10381..10404)

/ ttog an

/ Dound_molety= "primer Seq1RN"

complement (10440..10460)
                                                                                                                                                                                                                                                                                                                                                                                                      / Dound_moiety~ "primer 5RN"
8813..8836
/*teg= x
//bound_moiety~ "primer Seg2FN"
9238..9259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag= ab
/bound_moiety= "primer S3eR"
10654.10675
/*tag= ac
/bound_moiety= "primer 3F"
complement (10664.10684)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Thound_mojety "primer Race2B'
                                                             /*tag= q
/bound_moiety= "primer 121R"
complement (7757. 7779)
                                                                                                                  /*tag= r
/bound_moiety~ "primer S6RN"
complement (8037..8053)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /*tag= y
//bound_molety= "primer S31F"
complement (10062..10085)
      /*tag= p
/bound_moiety= "primer S41R"
complement (7381..7408)
                                                                                                                                                                                         /bound_moiety~ "primer 111R"
8196..8219
                                                                                                                                                                                                                                                                                                                                                   /bound_molety~ primer 8eR"
complement (8370..8391)
                                                                                                                                                                                                                                                                                                  /bound_moiety= "primer BeF" complement (8284..8312)
                                                                                                                                                                                                                                               /bound_moiety= "primer 7F"
3281..8304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= ak
/bound_molety= "primer 1R"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /bound_molety= "primer 5F" complement (12731..12758)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        10-MAR-2000; 2000WO-US06456.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0123888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         *tag= ag
                                                                                                                                                                                                                                                                                                                                                                                                  *tag= w
                                                                                                                                                                                                                                                                                                                                            *tag= v
                                                                                                                                                                                                                                                                                     *tag=
                                                                                                                                                                                                                                  *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  40200053732-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14-SEP-2000
                                            primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                  primer_bind
                                                                                                                                                         primer_bind
                                                                                                                                                                                                              primer_bind
                                                                                                                                                                                                                                                                   primer_bind
                                                                                                                                                                                                                                                                                                                        primer_bind
                                                                                                                                                                                                                                                                                                                                                                             primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                    primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           primer_bind
          Malze; corn; zmet2a; DNA methyltransferase; cytosine-5-methyltransferase; DNA methyletion; marker-aided selection; chromosome segregation; DNA fingerprinting; gene therapy; trinucleotide repeat; fusion construct; SPRITE-1 retrotransposon; as.
                                                                                                                                                                                                                                                                                                        Zmet2a methyltransferase gene-retrotransposon SPRITE-1 fusion construct.
          /*tag= n
/bound_molety= "primer 13iR"
7081. 7102
/*tag= 70
/bound_molety= "Primer 13iF"
complement (7334.7354)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= a //etag= a //etag= //etag= b //etag= b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= 1
/bound_moiety= "primer 18iR"
complement (5043.5068)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /bound_moiety= "primer 15eR" complement (4467..4494)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /bound_moiety= "primer 161R"
complement (5404..5428)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /bound_moiety= "primer 14iR" 5648..5674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'Dound_molety= "primer llif"
5709..5734
'*tag= m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /bound_moiety= "primer 12iF" complement (6867..6890)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= c
/bound_moiety= "primer 9eF"
complement (1290..1311)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /bound_molety= "primer 9eR"
1762..1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
747..768
                                                                                                                                                                         AAA95272
ID AAA95272 standard; DNA; 12810 BP.
                                                               2719 ggggaggtagttgagcag 2736
                                                                                       762 ggggaggtagtcgagcag 779
                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      *tag= h
/ <u>=</u>
                                                                                                                                                                                                                                                                     21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Key
primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          primer_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                      Zea mays.
Synthetic.
                                                                                                                                                                                                                                AAA95272;
```

```
1;
                                                                                                                                                                                      The present sequence comprises the maize cytosine-5-methyltransferase coding sequence and the maize retrotransposon SRRIEI sequence. The methyltransferase is involved in the methylation of DNA, which is necessary for normal development in plants and animals. The methyltransferase coding sequence, protein, antibodies and antisense sequences can be used in the production of transgenic plants with altered levels of DNA methylation, in gene silencing, in marker-aided selection, to follow chromosome segregation, and to DNA ingerprint class II DNA methyltransferases in other plants. In addition, they can be used in gene therepy to treat human diseases caused by trinucleotide repeat amplification. The present sequence was used in homology comparisons with other members of the methyltransferase
                                                                                                           Novel zmet2a and zmet2b methyltransferase nucleic acid sequences of Zea mays used for stabilizing transgene expression, altering yield or blochemical qualities, and silencing targeted genes in transgenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      941 tecgecaagegeageegeaaggeggeatetteegggaagaagaegtegeeeeaag 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1121 gagcaggccatgcaggaggaggtggttgcggtcgcgggggggtcacccgggaagaagagg 1180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  881 gccaaggccgaggagatccaccagaacaaggaggaggaggaggaggaggtcgcggcgtcc 940
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 tocgccaagcgcagccgcaaggcggcatcttccgggaagagcccaagtcgcccccaag 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    181 caggocaagccggggaggaagaagaagaaggggatgccgagatgaaggagcccgtggaggac 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          821 atggcgccgagctccccgtcacccgccgcctacacgcgtctctgggcggaagcgcgcc 880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61 gccaaggccgaggagatccaccagaacaaggaggaggaggaggaggaggtcgcggcggcgtcc 120
                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               1 atggcgccgagetccccgtcacccgccgcctcacacgcgtctctgggcggaaqcgcgcc 60
                                                                                                                                                                                                                                                                                                                                                                                  17.1%; Score 466.8; DB 21; Length 12810; 98.4%; Pred. No. 9.6e-100; tive 0; Mismatches 7; Indels 1; (
                                                                                                                                                                                                                                                                                                                                                   Sequence 12810 BP; 3336 A; 2935 C; 2693 G; 3846 T; 0 other;
                                                                  Papa CM;
                                                                 Springer NM, Muszynski MG,
                     (WISC ) WISCONSIN ALUMNI RES FOUND. (PION-) PIONEER HI-BRED INT INC.
                                                                                                                                                                    Example 1; Fig 5; 103pp; English.
99US-0169858
                                                                                                                                                                                                                                                                                                                                                                                                           Matches 482; Conservative
                                           MINU ) UNIV MINNESOTA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1301 ccgcaaaaga 1310
                                                                                      WPI; 2000-587430/55.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               480 cgcaaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                  Kaeppler SM,
                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                 Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      qq
 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                αq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δλ
```

```
The present invention provides a simple and general reverse genetic strategy. The method (designated TILING for Targeted Induced Local Lesions in Genomes) comprises treating an organism or cell with a mutagen that induces point mutations in genomic DNA, the DNA is isolated and segments of the gene are amplified. The amplicons are denatured and renatured, and the resulting heteroduplexes treated with an enzyme that cleaves them at a mismatch. Heteroduplex cleavage products are detected relaves them at a mismatch. Heteroduplex cleavage products are detected cleaves them at a mismatch. Heteroduplex cleavage products are detected cleaves them at a mismatch. Heteroduplex cleavage products are detected cleaves them at a mismatch. The method is especially useful to identify mutations in crop plants, e.g. maize, alfalfa, wheat, barley, soy beans, cotton, pine, rice and legumes for gene function and interactions studies. The method is simple and generally applicable to organisms for which well-developed genetic techniques are not available. It combines the filedentify, concurrently with screening, the location of mutations, identify, concurrently with screening, the location of mutations it generates a wide range of mutant alleles, is fast and automatable, closes not involve inserting heterologous nucleic acid into a cell, and produces both (temperature-sensitive) missense and knockout mutations.
                                                                                                                                                                                                                                                                                                           Arabidopsis thaliana DNA encoding for wild type CMT3 (chromomethylase 3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "This sequence lacks both start and stop codons"
                                                                                                                                                                                                                                                                                                                                                                                Reverse genetic strategy; Targeted Induced Local Lesions in Genome; TILLING; mutational analysis; DNA mismatch; heteroduplex; crop plant; maize; alfalfa; cereal; soy bean; cotton; pine; rice; legume; CMT3; chromomethylase 3; DNA methyltransferase; chromodomain; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Identifying functional mutations in genes, useful e.g. for gene function or interaction studies in plants, by mutagenesis, amplification and formation of mismatched heteroduplaxes .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (HUTC-) HUTCHINSON CANCER RES CENT FRED.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mc Callum CM, Henikoff S, Colbert T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
27..502
/*tag= a
/partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Disclosure; Fig 4; 57pp; English.
                                                                             AAS15381 standard; DNA; 520 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-MAR-2001; 2001WO-US10545.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-193794P.
                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Д
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /partial
357..433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= c
434..502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27..356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2001-626448/72.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     P-PSDB; AAU09189.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200175167-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11-OCT-2001.
                                                                                                                                                                                                                              27-DEC-2001
                                                                                                                                                     AAS15381;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              intron
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   exon
RESULT
AAS15381
```

The present DNA sequence encodes for Arabidopsis thaliana CMT3 (chromomethylase 3), a DNA methyltransferase homologue with

Sequence 520 BP; 132 A; 82 C; 127 G; 179 T; 0 other;

a chromodomain.

SSSXS

5.68;

Best\_Local Similarity 67.3 Matches 218; Conservative

1516

ò

87

δ g ò g

Query Match

us-09-914-001-1.rng

```
ó;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fusion protein; stabilising polypeptide; proteolytic degradation, resistance; half-life; autoimmune disease; inflammation; nitro drug; thappab regulator protein; inflammatory bowel disease; in vivo imaging; nitroreductase protein; enzyme therapy; prodrug therapy; protease; cancer; pathological condition; ss.
                                                                                                                                                                                                                                                                                                                             1636 gatattgtggggtacttgaagcccaagtatgttctcatggaaaatgtggtggacatactc 1695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 caagegegettggaatgatggtggttgctatggtctgccacagttcaggatgcgt 1815
                                                                                                                                                                                                                ggtgatgttgatgtcatttgtggaggcccaccatgccaaggtatcagtgggtttaatcgg 1575
                                                                                                                                                                                                                                                                                                                                                                                                                                       1696 aaatttgeggatggttacctaggaaaatatgctttgagetgeettgttgetatgaagtae 1755
                                                                                                                                                                                                                                                    aagatggctaagggctatcttgcacggtttgctgttggacgccttctacagatgaattac 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       267 caagigaagaaiggaaigaatggcagciggagcitaigggciigcicagiiicgiiigagg 326
                                                         Gaps
                                                                                                                                              ó
Length 520;
Score 154.4; DB 22; Length
Pred. No. 1.3e-26;
0; Mismatches 106; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /*tag= a
/product= "stabilising polypeptide""
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FLGA insert stabilising polypeptide encoding DNA.
```

Location/Qualifiers

Epstein-barr virus.

ggagogotaaaggtggacaacgtcgtctactgcctcgggggatgacgtctatgtcaaggctg 589 711 aggaggggaggagcaggaggtggaggccggggtcgaggaggcagtggaggccggggctg 770

gagaaa 595 771 caggaa 776

290

à qq ò QQ

97US-0048945. 97WO-1B01508

25-JUN-1997; 15-NOV-1996;

17-NOV-1997;

WO9822577-A1

28-MAY-1998

(MASU/) MASUCCI M G.

Masucci MG;

WPI; 1998-312463/27.

```
This DNA encodes a stabilising polypeptide and is the FLGA insert of the invention. The invention provides a method for increasing the resistence of a core protein to proteolytic degradation that comprises linking or inserting onto or into the core protein a stabilising polypeptide of cormula [Glyay KiGlyby] (KiGlyc)] where Glya, Glyb, Glyc are 1-6 comparised in the core protein a stabilising polypeptide of sequential (Glya KiGlyby) (KiGlyc)] where Glya, Glyb, Glyc are 1-6 concoding the stabilising polypeptide can be linked onto or inserted into encoding the stabilising polypeptide can be linked onto or inserted into a nucleic acid encoding a core protein. The fusion proteins of the invention are more resistant to degradation by proteases and, thus, have a longer half-life than the unitused core protein. The products can be used for treating autoimmune diseases, can and inflammation. In particular, the core protein may be an Ikappab regulator protein for the treatment of inflammatory bowel disease, or an altroreductase protein or or other pathological conditions. The fusion proteins can also be used in cities and as in vivo imaging.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cggcggcgtcctccgccaagcgcagccgcaaggcggcatcttccgggaagaagcccaagt 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            230 ccgtggaggacgacgtgtgcgccgaggagcccgacgaggaggaggagttggccatgggcgagg 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ggaagaagaggtggggaaggaacgccgccgccgccgctggcgaccacgagccggagt 409
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gcagcactgccgcaaagaaaccggatgaggaggaagagctcaaggccagatgtcactacc 529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    аддаддадсаддадсаддаддаддаддаддаддаддад----аддаддаддадсаддадс 710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ggaagegegeceaaggeegaggagateeaceagaaeaaggaggaggaggaggaggteg 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              410 tcatcggcagccctgttgccgcggacgaggcgcgcagcaactggcccaagcgctacggcc 469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                         New fusion proteins resistant to proteolytic degradation - comprising a core protein with a stabilising polypeptide comprising a peptide sequence containing glycine repeats
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    290 aggaggccgaggagcaggccatgcaggaggaggtggttgcgggtcgcgggggggtcacccg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 3.0%; Score 83.2; DB 19; Length 795; Best Local Similarity 48.4%; Pred. No. 8.69-10; Matches 264; Conservative 0; Mismatches 278; Indels 4; Anthes 264; Conservative Discourage 10; Mismatches 278; One 10; Mismat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 795 BP; 200 A; 104 C; 478 G; 13 T; 0 other;
                                                                                                                                                                                                                                   Disclosure; Fig 3; 120pp; English.
P-PSDB; AAW79128.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               350
    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
```

1816 gtgttcctctgggggtgctctttct 1839 

1756

qq

g

δý

207

δ g ŏ AAV55830 standard; DNA; 795

(first entry)

18-NOV-1998

ï

```
The present sequence is that of DNA encoding the Epstein-Barr virus (EBV) nuclear antigen protein 1 (EBNA1, see AAV95856). EBNA1 is utilised in a novel method for obtaining a eukaryotic cell that is stably transfected with at least one episome. This method involves transfecting a eukaryotic cell with: (1) a first episome comprising an EBV origin of replication (oriP, see AAA50253), a gene encoding a first protein whose expression results in cell death and a
AAA50254 standard; DNA; 1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0249585.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-FEB-2000; 2000WO-US03547.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (PHAR-) PHARMACOPEIA INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chelsky
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000-515062/46.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Epstein-barr virus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; AAY95856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200047778-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                07-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Horlick RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17-AUG-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA50254;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EBV; gene
                                        190
                                                                                378
                                                                                                                           250
                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                       OD
                                                                                                                                                                                                                                                                                                                                                                               δy
                                                                                                                                                                                                                                                                                                                                                                                                                        Op
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                           g
                                                                                                                         οy
                                                                                                                                                              g
                                                                                                                                                                                                              Qγ
                                                                                                                                                                                                                                                                                               οχ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This is a nucleotide sequence of the stabilising sequence-encoding insert. The invention provides a method for increasing the resistance of a core protein to proteolytic degradation that comprises linking or inserting onto or into the core protein a stabilising polypeptide of formula [(Glya)X(Glyb)X(Glyc)Z]n where Glya, Glyb, Glyc are 1-6 sequential Gly residues and X, Y, Z are Ala, Ser, Val, Ile, Leu, Met, Phe, Pro or Thr and n can be anything between 1-66. X, Y and Z need not be identical from repeat to repeat. Alternatively a nucleic acid encoding a core protein. The fusion proteins of the nucleic acid encoding a core protein. The products can be a longer half-life than the unfused core protein. The products can be used for treating autoimmune diseases, cancer and inflammation. In particular, the core protein may be an IkappaB regulator protein for the treatment of inflammatory bowel disease, or a nitroeductses protein treatment of inflammatory bowel disease, or a nitroeductses protein which can activate nitro drugs in enzyme/prodrug therapy to treat cancer or or other pathological conditions. The fusion proteins can also be used in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1;
                                                                                                                                                                                                                                                  Fusion protein; stabilising polypeptide; proteolytic degradation; resistance; half-life; autoimmune disease; inflammation; nitro drug; lkappas regulator protein; inflammatory bowel disease; in vivo imaging; nitroreductase protein; enzyme therapy; prodrug therapy; protease; cancer; pathological condition; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 gaggagateceaccagaaccaagagaggaggaggaggaggtegeggeggegteeteegecaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New fusion proteins resistant to proteolytic degradation comprising a core protein with a stabilising polypeptide comprising a peptide sequence containing glycine repeats
                                                                                                                                                                                                         Nucleotide sequence of the stabilising sequence-encoding insert.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.0%; Score 81.2; DB 19; Length 799;
48.5%; Pred. No. 2.6e-09;
tive 0; Mismatches 268; Indels 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 799 BP; 201 A; 106 C; 479 G; 13 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               or other pathological conditions. The fusic
diagnostic methods such as in vivo imaging.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure; Fig 4B; 120pp; English.
                                                                                AAV55831 standard; DNA; 799 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97WO-IB01508.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        97US-0048945
96US-0030986
                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 3.0
Best Local Similarity 48.5
Matches 255; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (MASU/) MASUCCI M G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1998-312463/27.
                                                                                                                                                                                                                                                                                                                                                                                    Epstein-barr virus.
                                                                                                                                                                                                                                                                                                                                                                                                                            WO9822577-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-NOV-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               15-NOV-1996;
                                                                                                                                                                 18-NOV-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     28-MAY-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Masucci MG;
                                                                                                                         AAV55831;
                                        RESULT
AAV55831
```

á 合 ŏ

Stably transfecting eukaryotic cells with at least one episome for the production of a desired protein in vitro and for gene therapy  ${\boldsymbol{\cdot}}$ ccggggaggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249 437 309 497 369 557 429 617 489 490 ccggatgaaggaagaagactcaaggccagatgtcactaccggagcgctaaggtggacaac 549 734 gecgaggageecgaegaaggaggagttggeeatgggegaggaggaggeegaaggeagee 310 atgcaggaggaggtggttgcggtcgcgggggggtcacccgggaagaagagggtggggaga 370 aggaacgeegeegeegeegetggegaceacgageeggagtteateggeageeetgttgee 430 goggacgaggcgcagcaactggcccaagcgctacggccgcagcactgccgcaaagaaa 678 дадсаддаддаддсаддадс---аддаддаддаддаддадсаддаддаддаддаддад nuclear antigen 1; EBNA1; episome; transfection; selection; therapy; ds. Epstein Barr virus nuclear antigen 1 protein (EBNA1) DNA. Disclosure; Fig 2; 53pp; English

```
ö
selectable marker for eukaryotic cells; and (2) a second episome comprising an EBW orip and a gene encoding a second protein, where expression of the second protein prohibits the occurrence of cell death resulting from expression of the first protein to produce promotes retention of the episomes by the cells. The doubly transfected cells which also express an antigen that promotes retention of the episomes by the cells. The doubly transfected cells are maintained under conditions in which the first and second proteins and the selectable marker are expressed, and the selective pressure specified by the marker is maintained. Under these conditions, only cells containing both episomes live. Protein of interest from the other episome. Either or both epitopes may further comprise a nucleic acid sequence encoding a protein, a nucleic acid encoding an RNA that is not intended to be expressed in the cell (e.g. a therapeutic CCC a tag for the cells. The method is applicable to cell culture or intact organisms, for gene therapy. It allows the rapid establishment of eukaryotic cells that stably and reliably express conditions continued to be expressed method of selection, and maintenance of interest, using a novel method of selection, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310 atgcaggaggaggatggttgcggtcgcggcggggtcacccggggaagaagaggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    370 aggaacgecgecgecgetggegaceaegagecggagtteateggeageetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                430 goggacgaggcgcgcagcaactggcccaagcgctacggccgcagcactgccgcaaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gaggagatecaccagaacaaggaggaggaggaggaggaggtegeggeggegteeteegeeaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgcccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ccggggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.9%; Score 78.6; DB 21; Length 1926; 48.5%; Pred. No. 1.5e-08; Live 0; Mismatches 229; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1926 BP; 487 A; 352 C; 872 G; 215 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EBV tethering protein EBNA1 encoding DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                          selection factors, such as antibiotics.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     920 gggcaggagggcaggagcaggagg 944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  490 ccggatgaggaggaagagctcaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAF82902 standard; DNA; 1926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity 48.5 es 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAF82902;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
AAF82902
ID AAF8
XX
          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           XEXEX
```

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention provides a composition comprising nucleic acid, histone HI protein and expression vector operationally encoding a protein suitable for tethering the nucleic acid to the histone HI protein, where the tethering protein is LANA. The composition is useful in aiding the retention of the viral DNA in the host cell. The viral vector encodes a protein suitable for tethering DNA to Histone HI. Methods for screening for compounds which are agonistic or antagonistic for the tethering of viral proteins to histone HI and DNA binding sites are useful for developing the method of viral transfer. The composition has applications to gene therapy, including the treatment of multiple sclerosis, Parkinson's disease, Huntington disease and diabetes. The present sequence represents the nucleotide sequence of the Epstein-barr virus
Histone HI; tethering protein; LANA; gene therapy; multiple sclerosis; Parkinson's disease; Huntington disease; diabetes; human herpesvirus 8; EBV; latency-associated nuclear antigen; LANA; EBNAI; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         composition for use in gene therapy comprises an expression vector nat includes a nucleic acid sequence encoding a nucleic acid binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 gaggagatccaccagaacaaggaggaggaggaggaggtcgcgggggggcgtcctccgccaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccggggaaggaagaagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   250 gccgaggagccgacgaggaggagttggccatgggcgaggaggaggccgagggcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     370 aggaacgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 1926;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1926 BP; 487 A; 352 C; 872 G; 215 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.9%; Score 78.6; DB 22;
48.5%; Pred. No. 1.5e-08;
tive 0; Mismatches 229;
                                                                                                                                                                                                     Location/Qualiflers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Disclosure; Fig 9C; 60pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (EBV) tethering protein ENNAl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0410399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      29-SEP-2000; 2000WO-US26908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Cotter MA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 2.9
Best Local Similarity 48.5
Matches 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (UNMI ) UNIV MICHIGAN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-281736/29.
P-PSDB; AAB62332.
                                                                                                                                       Epstein-barr virus
                                                                                                                                                                                                                                                                                                                                         WO200125484-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Robertson ES,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                        12-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     740
          NAME OF THE OF T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

```
Anti-sense strand; plasmid pCMVEBNA; EBNA 1; episome; transfection; Epstein Barr Virus Nuclear Antigen 1; origin of replication; BSV orib; eucaryotic host cell; recombinant cell line; ion channel; multiple gene expression; receptor; transporter protein; gene therapy; transcription factor; adhesion molecule; antisense therapy; gene amplification; cell immortalisation; ss.
                                                                                                                                                                                                                                                                                                           The present sequence is an anti-sense strand of commercially available
                                                                                                                                                                           430 goggacgagggggggagcagcaactggcccaagcgctacggccgcagcactgccgcaaagaaa 489
                                                                                                                                           310 atgcaggaaggaggtggttgcggtcgcggcggggtcacccgggaagaagaagggtggggaga 369
                                                                                                                                                                                                              370 aggaacgeegeegeegeegetggegaecacgageeggagtteateggeageeetgttgee 429
   ccggggaggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                        gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New method for expressing genes from recombinant eukaryotic cells, useful for gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /*tag= a
/product= "EBNA 1 protein"
/note= "Epstein Barr Virus Nuclear Antigen 1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
complement (3032..4957)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Anti-sense strand of pCMVEBNA plasmid.
                                                                                                                                                                                                                                                                                                                                                                                     1303 gggcaggaggggcaggagg 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Robbins AK;
                                                                                                                                                                                                                                                                                                                                                        490 ccggatgaggaggaggagctcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 1; Fig 1; 86pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAX90923 standard; DNA; 5452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   98US-0040961.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99WO-US03307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (PHAR-) PHARMACOPEIA INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Horlick RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1999-610610/52.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Epstein-barr virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cytomegalovirus.
Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             W09947647-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-MAR-1998;
06-AUG-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Damaj BB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAX90923;
                                                                      250
   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Key
                                                                                                                                                                                                                                              qq
                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     qq
                                                                                                                                   õ
                                                                                                                                                                         Op
                                                                                                                                                                                                            Qγ
                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                        δŽ
                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  The present sequence represents the Epstein Barr nuclear antigen. It is used to produce bait vectors of the invention. The specification describes a compositions and methods for a genetic system of detecting protein-protein interactions in a mammalian host cell. The system comprises bait and test, both containing selection genes, and viral corigin of replications which require bound viral replication proteins to effect replication. The compositions is useful for detecting an interaction between a bait protein and a test protein. It is useful in a mammalian two-hybrid system for detecting protein-protein interactions in a mammalian host cell.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   430 geggaegaggegegeageaactggeeceaagegetaeggeegeageactgeegeaaagaaa 489
                                                                                      mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 gaggagateceaccagaacaaggaggaggaggaggaggaggtegeggegteeteegeeaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Composition for detecting protein-protein interactions in a mammali, two hybrid system comprises bait and test vector which consist of selection gene, vector viral origin of replication and fusion gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag
Origin of replication; protein-protein interaction; replication; two-hybrid system; nuclear antigen; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 2580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                      Nucleotide sequence of the Epstein Barr nuclear antigen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2580 BP; 632 A; 512 C; 1054 G; 382 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 78.6; DB 21;
Pred. No. 1.6e-08;
0; Mismatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Disclosure; Column 17-20; 18pp; English.
                                                                                                                        490 ccggatgaggaggagctcaagg 514
                                                                                                                                                           920 gggcaggaggggaggagcaggagg 944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                  2580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.9%;
ilarity 48.5%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0050863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0050863
                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Huang B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Composition for detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (RIGE-) RIGEL PHARM INC.
                                                                                                                                                                                                                                                AAA75454 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 2000-593546/56.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity
Matches 216; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                              Epstein-barr virus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Payan D,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US6114111-A.
                                                                                                                                                                                                                                                                                                                    15-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-SEP-2000
                                                                                                                                                                                                                                                                                   AAA75454;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Luo Y,
                                                                                                                                                                                                              10
```

oy oy oy

```
ö
plasmid pcMvEBNA from which Epstein Barr Virus Nuclear Antigen 1 (EBNA 1) encoding DNA is obtained. EBNA 1 protein is used to stably maintain episomes containing EBV origin of replication (orlp) and a gene encoding protein or RNA of interest. Eucaryotic host cells expressing EBNA 1 protein are transfected with these episomes to produce recombinant cell lines expressing multiple genes of interest. This provides a rapid and relable method of stably expressing multiple genes of interest. This provides a rapid and relable method of stably expressing multiple genes in transfected cells. The episomes are useful in the transfection of genes encoding receptors, transporter proteins, ion channels, adhesion molecules and transcription factors. The episomes carrying desired genes for gene amplification, cell immortalisation, etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                    130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgcccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ccggggaggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     370 aggaacgeegeegeegeegetggegaceacgageeggagtteateggeageeetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     430 geggaegaggegegeagcaactggeccaagegetacggecgcageactgeegeaaagaaa 489
                                                                                                                                                                                                                                                                                                                                       gaggagatccaccagaacaaggaggaggaggaggaggtcgcggcggcggcctccgccaag 129
                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MCS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     310 atgcaggaggaggtggttgcggtcgcggcggggtcacccggggaagaagaggtggggaga
                                                                                                                                                                                                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Antisense; DNA library; identification; multiple cloning site;
                                                                                                                                                                                                                                                                     Length 5452;
                                                                                                                                                                                                                     Sequence 5452 BP; 1108 A; 1736 C; 1246 G; 1362 T; 0 other;
                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                   / Match 2.9%; Score 78.6; DB 20;
Local Similarity 48.5%; Pred. No. 2.2e-08;
nes 216; Conservative 0; Mismatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1502 GGCCAGGAGGGCCAGGAGCAGGAGG 1478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   490 ccggatgaggaggaggtcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAZ23778 standard; DNA; 8705
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99WO-US06742.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Vector pShuttle DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   inhibition; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 W09950457-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14-JAN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  107-0CT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAZ23778;
                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     190
     SSSSSSSSSSSSSS
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                     Q
                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ΩD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
```

```
ö
                                                                                                                                                                                                                            library targeted to a selected RNA transcript. The methods can be used for identifying antisense agents and for identifying target sites for antisense-mediated inhibition of a selected gene. The use of a direct library for target site selection significantly simplifies the screening process, since only very small libraries need be prepared and assayed. This sequence represents the vector pShuttle which is used in the method of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ccggggaggaagaagaagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             atgcaggaggaggtegttgcggtcgcgggggtcacccgggaaggaagagggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        goggacgaggogcagcaactggcccaagcgctacggccgcagcactgccgcaaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                                                        70 gaggagatccaccagaacaaggaggaggaggaggaggtcgcggcggcggcgaccaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggccgaggagcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                    This invention describes a novel method for generating an antisense
                                                                                                                                   for identifying antisense for antisense-mediated
                                                                                                                                                                                                                                                                                                                                                                                 Length 8705;
                                                                                                                                                                                                                                                                                                                                           Sequence 8705 BP; 1875 A; 2575 C; 2078 G; 2177 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                 Score 78.6; DB 20;
Pred. No. 2.6e-08;
0; Mismatches 229;
                                                                                                                                 Production of antisense libraries, used agents and for identifying target sites inhibition of a selected gene
                                                                                                                                                                                          Claim 16; Page 43-50; 63pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             514
                                                                               2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             490 ccggatgaggaggaagctcaagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7367 GGGCAGGAGGGCCAGGAGGAGG
                                                                               Pierce ML, Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA; 9600
                                                                                                                                                                                                                                                                                                                                                                                 2.9%;
ilarity 48.5%;
Conservative
          98US-0079792.
                                                   UTAH ) UNIV UTAH RES FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                                         WPI; 1999-610866/52
                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
Matches 216; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAV21683 standard;
          28-MAR-1998;
06-NOV-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-AUG-1998
                                                                               Ruffner DE,
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAV21683;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 1
AAV21683
ID AAV2
XX
AC AAV2
XX
DT 17-A
à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             òγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
```

```
This polynucleotide comprises the DNA sequence of vector plasmid powkmirkers. Pt., which contains an Epstein-Barr virus (EBV) origin of replication from plasmid pCEP4, a coding region for EBV nuclear antigen A from plasmid pCEP4, a coding region for EBV nuclear antigen A from pCEP4, a pair of inverted terminal repeats from adeno-associated virus, a cytomegalovirus enhancer/promoter, a bovine growth hormone polyA sequence, and a kanamycin resistance selectable marker. Polynucleotides encoding polypeptides, such as erythropoletin or leptin, and ribozymes and antisense of polynucleotides can be inserted into the vector. The vector is preferred for use in novel compositions and methods for improved polynucleotide delivery into cells. In these methods, polycationic agents are used to increase the frequency of uptake of a nucleic acid (see also AAV21684-86) into a cell. The polycationic agent can condense with the nucleic acid and inhibit serum and/or nuclease degradation of the nucleic acid. The nucleic acid can be a vector, may express a therapeutic protein or a vaccinating viral or cancer antigen, or is itself therapeutic (antisense or ribozyme). The methods and compositions can be used in the gene therapy of many diseases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Polycationic agents based on alpha-amino acids, able to complex with nucleic acid - to facilitate its entry into cell, condense it and protect it against serum degradation, particularly for use in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      **tag= e
| CMV immediate-early enhancer/promoter"
| 818.7050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /*tag= f
/note= "bovine growth hormone polyA sequence"
                                                     pCMVKmITR-EPI; vector;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JIELLOW N, DWarki V, Innis MA;
Zukermann R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pe= INVERTED
"AAV inverted terminal repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "AAV inverted terminal repeat"
                                                                                                                                                                                                                                                                                                                                                                     2623..4559
//rtag= b
//note= "EBV origin of replication"
4928..5104
                                                                                                                                                                                                                                                                                                                                                                  "EBV nuclear antigen A"
                                                  Polynucleotide delivery; plasmid pCMVKmITR-EP:
gene therapy; vaccine; polycationic agent; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Disclosure; Page 77-80; 100pp; English.
                                                                                                                                                                                                                                                                                  Location/Qualifiers
14..2594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /rpt_type= INVERTED
                                                                                                                                    Chimeric - Epstein-Barr virus.
Chimeric - Adenor-associated virus.
Chimeric - Cytomegalovirus.
Chimeric - Bos taurus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dubois-Stringfellow N,
Vector plasmid pCMVKmITR-EPI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97WO-US14465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96US-0023867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /note= "AAV
7189..7355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'rpt_type=
'note= "AAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ..6734
                                                                                                                                                                                                                                                                                                                                        /*tag= a
/product=
                                                                                                                                                                                                                                                                                                                                               ๙
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tetsuo U,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1998-159296/14.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13-AUG-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-AUG-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene therapy
                                                                                                                                                                                                                                                                                                                                                                                                    misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        W09806437-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-FEB-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Murphy JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ū
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       promoter
                                                                                                                                                                                                                                                                                  Key
```

```
ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G_i protein coupled receptor; G_ipCR; G_i_a protein; cytoplasmic calcium; calcium mobilization; nociceptin receptor; chemokine receptor; CCR3; CCR2; interleukin 8 receptor type B; episomal expression vector; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A method to enhance signal transduction responses involving cytoplasmic calcium release \hfill -
                                                                                                                                                                                                                                                                           ccggggaggaagaagaagagggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                   250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                     310 atgcaggaggaggtggttgcggtcgcggcggggtcacccgggaagaagagggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                     370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                       430 geggaegaggegegeageaactggeeceaagegetaeggeegeageactgeegeaagaaa 489
                                                                                               gaggagatecaccagaacaaggaggaggaggaggaggtegegeggegteeteegeeag 129
                                                                                                                                                 130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgcccccaagcaggccaag 189
                                                                       Gaps
                                                                       ò
                                              Length 9600;
           Sequence 9600 BP; 2326 A; 2376 C; 2817 G; 2081 T; 0 other;
                                                                       Indels
                                            Score 78.6; DB 19;
Pred. No. 2.7e-08;
0; Mismatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleotide sequence of pCEP4 vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1349 gggcaggaggggcaggagcaggagg 1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Robbins AK;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          490 ccggatgaggaggaagagctcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAZ22248 standard; DNA; 10380 BP.
                                              Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99WO-US02852.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0040961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (PHAR-) PHARMACOPEIA INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Damaj BB, Horlick RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 1999-562218/47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           W09947921-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23-SEP-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-NOV-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAZ22248;
                                                                                                20
                                                                                                                                                                                                  190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      χX
                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                               q
                                                                                                                                                 δ
                                                                                                                                                                         Db
                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                    QΫ́
                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                 òγ
                                                                                                                                                                                                   òγ
```

"CMV enhancer/promoter"

/note= "C 758..775

/\*tag= b //label= SP6\_promoter 845.849 \*tag= c note= "SP6 RNA start" /function= cloning\_linker 967..1107

996

õ

ò 셤 à g ö ద ò g δ 셤 δλ g δy Q

\*tag= f function= SV40\_origin

1580..4189

/\*tag= g /label= EBNA-1 4190..6374

/\*tag= e /note= "SV40 poly A" 1108..1531

```
Plasmid pcisEBON (a pRK5 derivative) is an episomal CMV driven expression plasmid. HuHGF variants with enhanced receptor binding activity were produced by site-directed mutagenesia. Stable populations of preferred HGF variants were obtained by transfecting human embryonic kidney 293 cells and then these were subcloned in pcisEBON. See AAR52940-R52949 for examples of pref. HGF variants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hepatocyte growth factor variants - are resistant to proteolytic cleavage into its two-chain form, used to treat malignancies associated with HGF receptor
                                                                                                                                                                                                                                                                                                                          /*tag= h
/function= oriP
4295..4887
/*tag= 1
/note= "family of repeats"
5866..5978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Example 1; Fig 6; 87pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     93WO-US04648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     92US-0884811
92US-0885971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lokker NA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GETH ) GENENTECH INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1993-386573/48.
                                                                                                                                                                                                                                                                                                                                                                                                              misc_structure
                                                                                                                                                                                                                                                                                                                                                            repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Godowski PJ,
                                                              misc_feature
                                                                                                           misc_feature
                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     L7-MAY-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-MAY-1992;
18-MAY-1992;
                                                                                                                                                             polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      W09323541-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-NOV-1993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           terminator
              promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
;
0
                                           The invention relates to a cell transfected with a gene encoding a G_i protein coupled receptor (G_iPCR) and with a gene colding for a G_i_a protein capable of coupling to the G_iPCR, to increase the cytoplasmic calcium upon binding of an agonist to the G_iPCR. The cell is used to assay a test compound for its effect on G_iPCR. The method and cells are useful for assaying agonist and antagonist compounds, which bind to G_iPCR which, stimulate intracellular calcium mobilization, such as the nocleptun receptor, and particularly chemokiane receptors such as the nocleptun receptor type B. The present sequence represents the nucleotide sequence of the pCEP4 vector.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310 atgcaggaggaggtggttgcggtcgcggcggggtcacccggggaagaagagggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6715 дадудусаудадсаудадуадудудсаудадудсаудассаудадсаудаддудсаудаддад
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6775 caggagcaggagggcaggaggagggcagggcaggagcagggcaggagcaggagcaggag
                                                                                                                                                                                                                                                                                                                                                                                                          130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         coggggaggaagaagagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       370 aggaacgecgecgecgecgetggegaccacgageceggagtteateggeagecetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430 geggaegaegaegegeaaetggeecaaagegetaeggeegeageaetgeegeaaaaaa 489
                                                                                                                                                                                                                                                                                                                                           70 gaggagatccaccagaacaaggaggaggaggaggaggeggcggcggcgtcctccgccaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hepatocyte Growth Factor; HGF; variant; mutein; in vitro mutagenesis; proteolysis resistant; liver; malignancy; CMV-driven; Cytomegalovirus; episomal expression plasmid; ss.
                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                              Length 10380;
                                                                                                                                                                                                                              Sequence 10380 BP; 2560 A; 2561 C; 2964 G; 2295 T; 0 other;
                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                           Score 78.6; DB 20;
Pred. No. 2.7e-08;
0; Mismatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Plasmid pCisEBON for subcloning huHGF variants.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6835 gggcaggagggcaggagcaggagg 6859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490 ccggatgaggaggaggtcaagg 514
                Examples; Fig 3A-J; 64pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAQ51731 standard; DNA; 10596
                                                                                                                                                                                                                                                                             2.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                           Best Local Similarity 48.5
Matches 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAQ51731;
                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   enhancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190
```

/phenotype= neomycin\_resistance /note= "Tn5 neomycin phosphotransferase gene"

/\*tag= m /label= TK\_promoter 8114..8594

..8112

/note=

function= M13\_ori 595..10414

c

/label- delta\_2a

Mark MR;

'label = HSV\_TK\_terminator\_3' -end

6975..7975

/\*tag= j /note= "dyad region"

6375..6457

S

ö 70 gaggagatccaccagaacaaggaggaggaggaggaggtcgcgggggggcgtcctccgccaag 129 370 aggaacgccgccgccgctggcgaccacgagccggagttcatcggcagcctgttgcc 429 430 geggaegaggegeageaactggeecaagegetaeggeegeageactgeegeaaagaaa 489 0; Gaps Length 10596; Query Match 2.9%; Score 78.6; DB 14; Length 10 Best Local Similarity 48.5%; Pred. No. 2.7e-08; Matches 216; Conservative 0; Mismatches 229; Indels 2883 gggcaggaggggcaggagcaggagg 2907 coggatgaggaagaagctcaagg 514 οg qq Oy Dp Qγ qq g qq δλ δ δλ

Search completed: July 15, 2002, 11:40:46 Job time: 8878 sec

	:	
		.•
		•

```
1, Appli
7, Appli
7, Appli
13, Appli
2, Appli
2, Appli
1, Appli
17, Appli
11, Appli
11
  Sequence 2
Sequence 7
Sequence 1
                                                              Sequence Seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 1
US-09-130-114-2/C
Sequence 2, Application US/09130114
Patent No. 5976807
GENERAL INFORMATION:
APPLICANT: HOLLICK, Robert A.
APPLICANT: RODDINS, Alan K.
TITLE OF INVENTION: EURARYOTIC Cells Stably Expressing Genes
TITLE OF INVENTION: From Multiple Transfected Episomes
TITLE OF INVENTION: From Multiple Transfected Episomes
CURRENT APPLICATION NUMBER: US/09/130,114
CURRENT PILING DAFE: 1998-08-06
NUMBER OF SEQ ID NOS: 36
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 2
LENGTH: 1931
TYPE: DNA
TYPE: DNA
CRANISM: EBNA
US-09-130-114-2
2301
2301
15301
1864
1864
1864
12277
2277
2277
2277
2277
2277
2277
3374
3747
15378
    July 15, 2002, 09:15:38 ; Search time 79.05 Seconds (without alignments) 8501.623 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                      US-09-914-001-1
2736
1 atggcgccgagctccccgtc......caggggaggtagttgagcag 2736
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4.5
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                   383533 seqs, 122816752 residues
                        GenCore version
Copyright (c) 1993 - 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                      OM nucleic - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                         IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                               Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40000000000
                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Database :
                                                                                                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                 :uo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0 0
```

Oneve Watch 3 4%. Soore 03 2. DB 2. Length 1031.	Similarity 49.1%; Pred. No. 7.4e-14;	Matches 279; Conservative 0; Mismatches 283; Indels 6; Gaps		Qy 44 ctgggcggaagcgccgccaaggccgaggagatccaccagaacaaggaggaggaggaggagg		Db 984 CGGAGGTGGAGGACGAGGACGGGGAGGACGAGGACGAGGAGGACGAGGACGAGGAG		Qy 104 aggtcgcggcgtcctccgccaagcgcagccgcaaggcgcatcttccgggaagaagc 163		Db 924 ACGGGGAGGACGAGGACGGGAGGAGGAGGAGGAGGACGAGGACGGGGAGGA	Qy 164 ccaagtcgcccccaagcaggccaagccggggaggaagaagaagaag		Db 864 AGGACGCGGAGGAGGAGGACGAGGACGGGGAGGAGGAGGA		Oy 224 aggagcccgtggaggacgacgtgtgcgccgaggaggagcccgacgaggaggaggttggccatgg 283		Db 804 GGGAGGACGGGAGGACGAGGACGAGGAGGAGGAGGAGGAG		Oy 284 gcgaggaggaggccgaggagccaggccatgcaggaggaggaggtggttgcggtcgcgggggt 343		Db 744 AGGACGAGGACGAGGACGAGGACGAGGACGAGGACGAGGACGAGGAG		Qy 344 cacccgggaagaagaggtggggaaagaaaggaacgccgccgccgctggcgaccac 399		DD 684 AGGACGGGAGGACGGGAGGACGAGGGGGGGGGAGGACGAGGACGGGG 625
Description	Sequence 2, Appli	14	Sequence 2, Appli	7	Sequence 1, Appli	Sequence 1, Appli	Sequence 15, Appl	Sequence 15, Appl	Sequence 15, Appl	15,	15,	Sequence 209, App	Sequence 208, App	Sequence 1, Appli	Sequence 20, Appl	Sequence 20, Appl	Sequence 20, Appl	Sequence 5, Appli	Sequence 5, Appli	Sequence 6, Appli	Sequence 6, Appli	Š	Sequence 5, Appli	Sequence 5, Appli	Sequence 7, Appli

ij

```
226 gagcccgtggaggacgacgtgtgcgccgaggagcccgacgaggaggaggagttggccatgggc 285
                                                                                                                                                                                                                                                              286 gaggaggaggccgagggccatgcaggaggaggaggtggttgcggtcgcggggggtca 345
                                                                                                                                                                                                                                                                                                                                       346 cccgggaagaagaggtggggagaaggaacgccgccgccgctggcgaccacgagccg 405
                                      106 gtcgcggcggcgtcctccgccaagcgcagccgcaaggcggcatcttccgggaagaagccc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2, Application US/09050863

Patent No. 6114111

GENERAL INFORMATION:

APPLICANT: Lao, Yang

APPLICANT: Hiang, Betty

TITLE OF INVENTION: Mammalian Protein Interaction Cloning

TITLE OF INVENTION: System

NUMBER OF SEQUENCE: 5

CORRESPONDENCE ADDRESS:

ADDRESSEE: Flahr, Hobbach, Test, Albritton & Herbert

STREET: 4 Embarcadero Center, Suite 3400

CITY: San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 2580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/050,863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 78.6; DB 3;
Pred. No. 3.7e-10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A-65638/DJB/RMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: SILVA, Robin M.
REGISTRATION NUMBER: 39.304
REFERENCE/DOCKET NUMBER: A-ffelecommunication:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (415) 781-1969
TELEFAX: (415) 949-871
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 2580 base pairs
TYPE: nucleic acid
STRANDEDNESS: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTY: USA
ZIP: 94111-4187
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30-MAR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          , MOLECULE TYPE:
US-09-050-863-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    1045 CAG 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                 406 gag 408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-050-863-2
                                    ò
                                                                       g
                                                                                                                                           g
                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                            à
                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                              δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46 gggcggaagcgccgccaaggccgaggagatccaccagaacaaggaggaggaggaggag
    --gagooggagttcatcggcagccctgttgccgcggacgaggcgcgcagcaactggccca 457
                                                                                                                                                     518 gatgtcactaccggagcgctaaggtggacaacgtcgtctactgcctcgggggatgacgtct 577
                                                                           458 agcgctacggccgccactgccgcaaagaaaccggatgaggaggaagactcaaggcca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 7218;
                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:

APPLICANT: DORNER, F.
APPLICANT: SCHETFLINGER, F.
APPLICANT: SCHETFLINGER, F.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 52
CORRESPONDENCE ADDRESS:
ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURENT APPLICATION DATA: BAPLICATION NUMBER: US/08/232,463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.9%; Score 79.4; DB 1; Best Local Similarity 3.9%; Pred. No. 3.7e-10; Matches 14; Conservative 229; Mismatches 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       29,768
ER: 30472/114 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EP 91 114 300.6
                                                                                                                                                                                                                             578 atgtcaaggctggagaaaacgaggcaga 605
                                                                                                                                                                                                                                                                444 ACGGGGAGGACGAGGACGGGGAGGA 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION: 435
PRIOR APPLICATION DATA:
PAPLICATION NUMBER: US/07/935,313
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                          Sequence 14, Application US/08232463
Patent No. 5670367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPTRY: USA
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC COMPATIBLE
COMPUTER: STEEM: PC-DOS/MS-DC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO: 14: SEQUENCE CHARACTERISTICS: LENGTH: 7218 base pairs TYPE: nucleic acid STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE/DOCKET NUMBER: 30
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703)836-9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: EP 91
FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, SLEPHON A.
REGISTRATION NUMBER: 29,7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; CLONE: pTZgpt-F1s
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: 1800 crry: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMMEDIATE SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                         US-08-232-463-14/C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX:
                                    g
                                                                                                            g
                                                                                                                                                     ò
                                                                                                                                                                                      g
                                                                                                                                                                                                                             ά
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                           à
```

ö

```
ö
                                                                                                                                          70 gaggagateceaceagaacaaggaggaggaggaggaggeggeggeggegteeteegeeag 129
                                                                                                          cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag 189
                                                                                                                                                                              ccggggaggaagaaggggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                      250 gecgaggagecegaegaggaggagttggecatgggegaggaggaggaggeegaggee 309
                                                                                                                                                                                                                                                                                                                            310 atgcaggaggaggtggttgcggtcgcggcggggtcacccgggaagaagagggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      geggaegaggegeageaactggeecaagegetaeggeegeageactgeegeaaagaaa 489
  Gaps
                                                                    NUMBER OF SEQUENCES: 375 Cem.

CORRESPONDENCE ADDRESS:
ADDRESSE: Flehr, Hobbach, Test, Albritton & Herbert STREET: 4 Embarcadero Center, Suite 3400
CITY: San Francisco
STATE: CA
COUNTRY: USA
ZIP: 94111-4187
COMPUTER: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION DATA:
APPLICATION TOWNOWN>
CLASSIFICATION: CUNKNOWN>
  ;
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: Mammalian Protein Interaction Cloning
Mismatches 229; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Silva, Robin M.
REGISCHARION UNBER: 38,304
REFERENCE/DOCKET NUMBER: A-65638/DJB/RMS
TELECOMMUNICATION INFORMATION:
TELEPRONE: (415) 781-1989
TELEPRAX: (415) 949-8711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 09/050,863
FILING DATE: CUDKNOWN>ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1303 GGCAGGAGGGCAGGAGC 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                490 ccggatgaggaggaagactcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
US-09-359-081-2
; Sequence 2, Application US/09359081
; Patent No. 6316223
; Patent No. TAO. Ying
  ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    System
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NO. 6310...
RAL INFORMATION:
APPLICANT: Lao, Ying
Hiang, Betty
Hiang, Botty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (415) 949-
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION DATA:
  Conservative
  Matches 216;
                                                                                                          130
                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                      á
                                                                    g
                                                                                                                                            셤
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                      q
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                              ŏ
```

```
ccggggaggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310 atgcaggaggaggtggttgcggtcgcggcggggtcacccgggaagaagaggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     370 aggaacgeegeegeegetggegaecaegageegagtteateggeageetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        430 geggaegaggegegeageaactggeeceaagegetaeggeegeageactgeegeaagaaa 489
                                                                                                                                                                                                                                                                 70 gaggagatccaccagaacaaggaggaggaggaggaggtcgcgggggggctcctccgccaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                           130 egcagecgcaaggeggcatetteegggaagaageceaagtegeeeceaageaag
                                                                                                                                                                                                      ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 1, Application US/09130114

Fatent No. 5976807

GENERAL INFORMATION:

APPLICANT: HOLIACK, Robert A.

APPLICANT: Damaj, Bassam B.

APPLICANT: Robbins, Alan K.

TITLE OF INVENTION: Eukaryotic Cells Stably Expressing Genes

TITLE OF INVENTION: Envaryotic Cells Stably Expressing Genes

TITLE OF INVENTION: From Multiple Transfected Episomes

FILE REPERENCE: 0867/1D9031831

CURRENT FILIAG DATE: 1998-08-06

NUMBER OF SEC ID NOS: 36

SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 5452;
                                                                                                                                                                     Length 2580;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 78.6; DB 2;
Pred. No. 5.2e-10;
0; Mismatches 229;
                                                                                                                                                                   Score 78.6; DB 4;
Pred. No. 3.7e-10;
0; Mismatches 229;
                                                                                                   7
                   TYPE: nucleic acid
STRANDEDNESS: unknown
STROPOLOGY: unknown
MOLECULE TYPE: DNA
SEQUENCE DESCRIPTION: SEQ ID NO:
US-09-359-081-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1303 GGCAGGAGGGCAGGAGCAGGAGG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           490 ccggatgaggaggaagactcaagg 514
SEQUENCE CHARACTERISTICS:
LENGTH: 2580 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative
                                                                                                                                                                     Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: DNA
CRGANISM: VEBNA
US-09-130-114-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-130-114-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQ ID NO 1
                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                   · Š
                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                           óγ
                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QΥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  QQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Óγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         qq
```

;

```
250 gocgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                            130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagcaggccaag
                                                                                                                                                         190 ccggggaggaagaagaagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc
                                                                                                                                                                                                                                                                                                                                                                                       370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   430 goggacgaggogogoagcaactggcccaagcgctacggccgcagcactgccgcaaagaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/910,647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Methods for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Compositions and Methods TITLE OF INVENTION: Polynucleotide Delivery NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS: ADDRESSE: ADDRESSE: Chiron Corporation STREET: 4560 Horton Street
CITY: Emeryville
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1218.002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1502 GGCCAGGAGGGCCAGGAGCAGGAGG 1478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          490 ccggatgaggaggaagactcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 1, Application US/08910647
Patent No. 6251433
GENEAL INFORMATION:
APPLICANT: Zuckermann et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE/POCKET NUMBER: 1218
TELECOMMUNICATION INFORMATION:
TELEPHONE: (510) 923-2706
TELEPAN: (510) 625-3542
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 9600 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTORNEY/AGENT INFORMATION:
NAME: Fujita, Sharon M.
REGISTRATION NUMBER: 38,459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; TOPOLOGY: linear
; MOLECULE TYPE: DNA (genomic)
US-08-910-647-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY: U.S.A.
ZIP: 94608-2916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-910-647-1
                                                                                                                                                                                        g
                                                                                                                                                                                                                                ŏ
                                                                                                                                                                                                                                                                    ρp
                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                       δ
```

```
190 ccggggaggaagaagaagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                               370 aggaacgecgecgecgecgetggegaceacgagecggagtteateggeagecetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               430 geggaegaggegegeageaactggeecaagegetaeggeegeageactgeegeaagaaa 489
                                                                                                                                              130 egcagecegeaaggeggeatetteegggaagaageceaagtegeeeceaageaggeeagg 189
                                                                                                                                                                                                                                                                                              250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggccgaggagcaggcc 309
                                                                         70 gaggagatccaccagaacaaggaggaggaggaggaggaggtcgcggcggcggcgaccaag 129
                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 15, Application US/07884811
Patent No. 2316921
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J. Lokker, Nathalie A. Mark, Melanie R. TITLE OF INVENTION: SINGLE-CHAIN HEPATOCYTE GROWTH FACTOR VARIANTS NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS: ADDRESS: ADDRESSEE: Genentech, Inc.
                                     ö
 Length 9600;
Score 78.6; DB 4; Length 90
Pred. No. 6.7e-10;
0; Mismatches 229; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER FREADABLE FORM:
MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: patin (Genentech)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: JOINT STATE STATE STATE STATE STATE STATE: Genentech, Inc. STATE: South San Francisco STATE: California COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/884,811
FILING DATE: 19920518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1349 GGGCAGGAGGGCAGGAGGAGG 1373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
NAME: Dreger, Ginger R.
REGISTRATION NUMBER: 33,055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      490 ccggatgaggaggaagactcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: 75:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/225-3216
TELEFAX: 415/952-9881
 Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLASSIFICATION: 530
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 94080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 7
US-07-884-811-15
                                                                                                            셤
                                                                                                                                                  ò
                                                                                                                                                                               qq
                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                      ογ
                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                        ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
```

us-09-914-001-1.rni

```
δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δy
                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 15, Application US/07885971
Patent No. 328837
GENERAL INFORMATION:
APPLICANT: GOGOWSKI, Paul J. LOKKEr, Nathalie A. Mark, Melanie R. TITLE OF INVENTION: HEPATOCYTE GROWTH FACTOR PROFEASE DOMAIN VARIANTS CORRESPONDENCE: 21
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                 2463 GAGGGGCAGGAGCAGGAGGAGGAGGAGGAGGGGGCAGGAGCAG 2522
                                                                                                                                                                                                                                                                                                                   190 ccggggaggaagaagaaggagggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                        250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       310 atgcaggaggaggtggttgcggtcgcggcggggtcacccgggaagaagagggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    430 gcggacgaggcgcgcaactggcccaagcgctacggccgcagcactgccgcaaagaaa 489
                                                                                                                                                                                                                             70 gaggagatecaccagaacaaggaggaggaggaggaggaggtegeegeegeegeeag 129
                                                                                                                                                              Length 10596;
                                                                                                                                                              2.9%; Score 78.6; DB 1;
ilarity 48.5%; Pred. No. 7.1e-10;
Conservative 0; Mismatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: patin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/885,971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Genentech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2883 GGCAGGAGGGCAGAGGAGG 2907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 490 ccggatgaggaggaagagctcaagg 514
; INFORMATION FOR SEQ ID NO: 1; SEQUENCE CHARACTERISTICS: ; ENGTH: 10596 bases ; TYPE: NUCLEIC ACID STRANDENDESS: single ; TOPOLOGY: linear US-07-884-811-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 19920518
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                               Local Similarity
ses 216; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZIP: 94080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-07-885-971-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                Query Match
                                                                                                                                                                                   Best Loca
Matches
                                                                                                                                                                                                                                                           qq
                                                                                                                                                                                                                                                                                                                          q
                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                             ά
                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ŏ
```

```
2703 cadeadedecadedadedecadadageadedegecaddadegecaddadeadeadedad 2762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  130 cgcagccgcaaggcggcatcttccgggaagaagccaagtcgcccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         190 ccgggggaggaagaagaagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggccgaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               370 aggaacgecgecgecgetggegaceaegagecggagtteateggeageetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430 gcggacgaggcgcgcagcaactggcccaagcgctacggccgcagcactgccgcaaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                                           70 gaggagatccaccagaacaaggaggaggaggaggaggaggtcgcggcggcgtcctccgccaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 15, Application US/08087783A
Sequence 15, Application US/08087783A
Patent No. 5547856
GENERAL INFORMATION:
GENERAL INFORMATION:
APPLICANT: Godowski, Paul J., Lokker, Nathalle A., Mark, Melanie ITILE OF INVENTION: HEPATOCYTE GROWTH FACTOR VARIANTS
NUMBER OF SEQUENCES: 22
CORRESPONDENCE ADDRESS:
ADDRESSE: Genenech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
                                                                                                                                                                                                                                                                                                                                                                                      ó
                                                                                                                                                                                                                                                                                                                                                Length 10596;
                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                Score 78.6; DB 1;
Pred. No. 7.1e-10;
0; Mismatches 229;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ZIP: 94080 ... COMPUTER READABLE FORM: MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk COMPUTER: IBM PC compatible
2883 GGCAGGAGGGCAGGAGCAGGAGG 2907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               490 ccggatgaggaaggaagctcaagg 514
                                                                                                                                                                                                                                                                                                                                                Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative
                                                                                                                                                                                                                    LENGTH: 10596 bases
TYPE: NUCLEIC ACID
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 California
                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                             ; TOPOLOGY:
US-07-885-971-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: S
STATE:
```

ö

```
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2823 cadeadcadeadeacadeadeacadeacadeacadadadeacadeacadeacadadad 2882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310 atgcaggaggaggtggttgcggtcgcgggggggtcacccggggaagaagagggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgccccccaagccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             250 gccgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             430 geggaegaggegegeageaactggeceaagegetaeggeegeageactgeegeaaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70 gaggagateceaceagaacaaggaggaggaggaggaggaggtegeggeggegteeteegeeaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 10
US-194-088B-15
Sequence 15. Application US/08194088B
Patent No. 5580963
GENERAL INFORMATION:
CENERAL INFORMATION:
TITLE OF INVENTION: SINGLE-CHAIN HEPATOCYTE GROWTH FACTOR VARIANTS

TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ccggggaggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 10596;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 78.6; DB 1; Length 1
Pred. No. 7.1e-10;
0; Mismatches 229; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P0755779P1
                                SOFTWARE: WinPatin (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/087,783A
FILLIG DATE: 13-Jul-1993
CLASSIFCATION: 435
                                                                                                                      FTLING DATE: 13-Jul-1993
CLASSIPICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
PILING DATE: 18-MAY-92
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 35,600
REGISTRATION NUMBER: 35,600
REGISTRATION NUMBER: 35,600
REFERENCE/POCKET NUMBER: 907557
TELECHONE: 415/25-5416
TELECHONE: 415/22-5416
TELECHONE: 415/22-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2883 GGCAGGAGGGCAGGAGCAGGAGG 2907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            490 ccggatgaggaggaggetcaagg 514
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TOPOLOGY: Linear
US-08-087-783A-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δý
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
```

```
310 atgcaggaggaggtggttgcggtcgcggcgggtcacccgggaagaagaggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          370 aggaacgeegeegeegeetggegaeeaegageegagteateggeageetgttgee 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430 geggaegaggegegeageaactggeecaagegetaeggeegeageactgeegeaaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130 cycayccycaagycygcatcttccygyaagaayccaaaytcyccccccaagcaagcaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190 ccggggaggaagaagaagagggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               250 gocgaggagcccgacgaggaggagttggccatgggcgaggaggaggaggaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 10596;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.9%; Score 78.6; DB 1; Length 1 Best Local Similarity 48.5%; Pred. No. 7.1e-10; Matches 216; Conservative 0; Mismatches 229; Indels
                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
COMPUTER: 1BM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATÍN (Genentech)
CURRENT APPLICATION DATA:
APPLICATION NATA:
APPLICATION NAMBER: US/08/194,088B
FILING DATE: 09-FEB-1994
CLASSIFICATION: 530
               CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
STATE: California
                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER:
PILING DATE: 18-MAY-1992
ATTORNEY AGENT INFORMATION:
NAME: Gallegos, R. Thomas
REGISTRATION NUMBER: 32.692
REFERENCE/DOCKET NUMBER: 75501
TELEPHONE: 415/25-2614
TELEPHONE: 415/25-2614
TELERAX: 415/25-2614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490 ccggatgaggaggaagactcaagg 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
STRANDEDNESS: single
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                     USA
                                                                                                                                       94080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
US-08-194-088B-15
                                                                                               STATE: Ca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               οy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
```

2883 GGCAGGAGGGCAGGAGCAGGAGG 2907

ò

```
250 gccgaggagcccgacgaggagtggccatgggcgaggagaggccgaggagcaggcc 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME: Dreger, Ginger R. REGISTRATION NUMBER: 33,055
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/225-3216
TELEFAX: 415/952-9881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEK: 910/31-7168
INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHRACTERISTICS:
LENGTH: 10596 bases
TYPE: NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SS: single
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                       94080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; TOPOLOGY:
PCT-US93-04648-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX:
TELEX: 9
                                                                                                                                RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Dp
            g
                                                QΫ́
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Qγ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                       Sequence 15, Application US/08194087

Patent No. 5879910

GENERAL INNOFMATION:
GENERAL INNOFMATION:
TITLE OF INVENTION: HEPATOCYTE GROWTH FACTOR PROTEASE DOMAIN VARIANTS
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSE: Genentech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       130 cgcagccgcaaggcggcatcttccgggaagaagcccaagtcgcccccaagcaggccaag 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              190 ccgggggaggaagaagaagggggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            250 gecgaggagecegaegaggaggagttggecatgggegaggaggaggaggaggageaggee 309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           310 atgcaggaggaggtggttgcggtcgcgggggtcacccggggaagaagaggtggggaga 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               70 gaggagatccaccagaacaaggaggaggaggaggaggaggtcgcggcggcgaccaag 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         370 aggaacgccgccgccgctggcgaccacgagccggagttcatcggcagcctgttgcc 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 10596;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 78.6; DB 2; Length 1
Pred. No. 7.1e-10;
0; Mismatches 229; Indels
                                                                                                                                                                                                                                                         MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk COMPUTER: IBM PC COMPATIBLE OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                              REGISTRATION NUMBER: 779
REPERBNOK-DOCKET WHERE: 779
TELECOMMUNICATION INFORMATION:
TELEPHONE: 415/952-981
TELER: 910/31/-716
INFORMATION FOR SEQ ID NO: 15:
SEQUENCE CHARACTERISTICS:
LENGTH: 10596 bases
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 2.9%;
Best Local Similarity 48.5%;
Matches 216; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Dreger, Ginger R. REGISTRATION NUMBER: 35
                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                     94080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; TOPOLOGY:
US-08-194-087-15
              US-08-194-087-15
                                                                                                                                                                                                            COUNTRY:
RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

; 0 Paul J., Lokker, Natalie A., Mark, FACTOR VARIANTS 2523 GAGGAGGGCAGGAGGGCAGGAGCAGGAGCAGGAGGAGGGG 2582 430 geggaegagegegeageaactggeceaagegetaeggeegeageactgeegeaaagaaa 489 70 gaggagateceaceagaacaaggaggaggaggaggaggtegeggeggegteeteegeeaag 129 190 ccggggaggaagaagaagaagggatgccgagatgaaggagcccgtggaggacgacgtgtgc 249 ; Length 10596; Query Match 2.9%; Score 78.6; DB 5; Length 1 Best Local Similarity 48.5%; Pred. No. 7.1e-10; Matches 216; Conservative 0; Mismatches 229; Indels ZIP: 94080
COMPUTER READABLE FORM:
MEDIUM TYPE: 5.25 inch, 360 Kb floppy disk
COMPUTER: IBM PC compatible CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
CURRENT APPLICATION NUMBER: PCT/US93/04648
FILLING DATE: 19900517
CLASSISTCATION:
PRIOR APPLICATION NUMBER: 07/884811
FILING DATE: 18 MAY-92
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 07/885971
FILING DATE: 18 MAY-92
ATTORREY AGENT INFORMATION:
NAME: Dreger, Gincer Sequence 15, Application PC/TUS9304648
Sequence 15, Application PC/TUS9304648
GENERAL INFORMATION:
GENERAL INFORMATION:
TITLE OF INVENTION:
NUMBER OF ENQUENCES:
CORRESPONDENCE ADDRESS:
ADDRESSEE: Genentech, Inc.
STREET: 460 Point San Bruno Blvd
CITY: South San Francisco
STATE: California 755,779P1 2883 GGCAGGAGGGCAGGAGCAGGAGG 2907 490 ccggatgaggaggaagactcaagg 514

```
126 caagegeagecgeaaggeggeatetteegggaaggaageeceaagtegeeceeaageagge 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66 ggccgaggagatccaccagaacaaggaggaggaggaggaggaggtcgcggcggcgtcctccgc 125
203 agaaggggatgccgagatgaaggagcccgtggaggacgacgtgtgcgccgaggagcccg
                                                                                                                                              263 acgaggaggagttggccatgggcgaggaggaggcgaggagcaggccatgcaggagg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 2.8%; Score 75.4; DB 3; Length 16 Best Local Similarity 52.8%; Pred. No. 5.4e-09; Matches 163; Conservative 0; Mismatches 146; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Fu, Ying-Hui
APPLICANT: Yu, Chang-En
APPLICANT: Yu, Chang-En
APPLICANT: Mulligan, John T.
APPLICANT: Mulligan, John T.
APPLICANT: MULLIGAN: GENE PRODUCTS RELATED 1
TITLE OF INVENTION: GENE AND GENE PRODUCTS
TITLE OF INVENTION: WERNER'S SYNDROME
WINDER OF SEQUENCES: 209
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ZIP: 98104-7092
COMPUTER READALLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: 1BM PC compatible
COMPUTER: 1BM PC compatible
SOFTHANG SYSTEM: PC-DOS/MS-DOS
SOFTHANGE: PETCHIC Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: 27-DEC 1996
CLASSIFICATION: 8000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           E: SEED and BERRY LLP 6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY AGENT INFORMATION:
NAME: No. 609620tenburg Ph.D., Carol
REGISTRATION NUMBER: 39,317
REFERENCE/DOCKET NUMBER: 240052.419
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                      Sequence 208, Application US/08781891 Patent No. 6090620 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (206) 622-4900
TELEPRAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 208:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 16442 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                323 tggttgcggtcgcggcg 339
                                                                                                                                                                                                                                                                    18 AGCAGGAGGAGGAG 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seattle
Washington
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
STREET: 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TOPOLOGY:
US-08-781-891-208
                                                                                                                                                                                     엄
                                                             ò
                                                                                                                                          ò
                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
  310 atgcaggaggaggtggttgcggtcgcggggggtcacccgggaagaagagggtggggaga 369
                                                                                                                          370 aggaacgccgccgccgccgctggcgaccacgagccggagttcatcggcagccctgttgcc 429
                                                                                                                                                                                                              430 geggaegaegegegeageaactggeeceaagegetaeggeegeageactgeegeaagaaa 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83 agaacaaggaggaggaggaggaggtcgcggcggcgtcctccgccaagcgcaggcgcaagg 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 cggcatcttccgggaagaagcccaagtcgccccccaagcaggccaagccggggaggaaga 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 51259,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 76.2; DB 3; Length 5
Pred. No. 5.7e-09;
0; Mismatches 113; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Fu, Ying-Hui
APPLICANT: Fu, Ying-Hui
APPLICANT: Obling, Junko
APPLICANT: Obling, John T.
APPLICANT: Mulligan, John T.
APPLICANT: Schellenberg, Gerald D.
TITLE OF INVENTION: GENE AND GENE PRODUCTS RELATED TO
TITLE OF INVENTION: WERNER'S SYNDROME
NUMBER OF SEQUENCES: 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STATE: Searche STATE: Searche STATE: Washington COUNTRY: USA

ZIP: 98104-7092
COMPUTER: READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
FILING DATE: 27-DEC-1996
CLASSIFICATION: 800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3: SEED and BERRY LLP
6300 Columbia Center, 701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY AGENT INFORMATION:
NAME: No. 6090620tenburg Ph.D., Carol
REGISTATION NUMBER: 39,317
REFERENCE/DOCKET NUMBER: 240052.419
TELECOMMUNICATION INFORMATION:
TELEFAK: (206) 682-693
INFORMATION FOR SEQ ID NO: 209:
                                                                                                                                                                                                                                                                                                                               2883 GGGCAGGAGGGCAGGAGCAGGAGG 2907
                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 209, Application US/08781891 Patent No. 6090620 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 2.8%;
Best Local Similarity 56.0%;
Matches 144; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 51259 base pairs
TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: 6300 C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-781-891-209/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; TOPOLOGY:
US-08-781-891-209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δλ
                                                                               g
                                                                                                                          à
                                                                                                                                                          qq
                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                              Db
                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
```

ó

```
ô
                                                                                                                                                                                  306 ggccatgcaggaggaggtggttgcggtcgcggggggtcacccgggaagaagaggtggg 365
186 caagccggggaaggaagaagaaggggatgccgagatgaaggagcccgtggaggacgacgt 245
                                                                           Sequence 1. Application US/08728323A

Patent No. 5948676

GENERAL INFORMATION:

APPLICANT: Changy Yuan

APPLICANT: Russo, James J.

APPLICANT: Roore, Patrick S.

TITLE OF INVENTION: Immediate Early Protein From Kaposi's

TITLE OF INVENTION: Baccoing Same And Uses Thereof

NUMBER OF SEQUENCES: 21

CORRESPONDENCE ADDRESS:

ADDRESSEE: Cooper & Dunham LLP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.6%; Score 70.4; DB 2; Length 34 Best Local Similarity 52.4%; Pred. No. 4.8e-08; Matches 155; Conservative 0; Mismatches 141; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0575/52268/JPW/MSC/SKS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2: Cooper & Dunham LLP
1185 Avenue of the Americas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/08/728,323A FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIPICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: White, John P
REGISTRATION NUMBER: 28,678
REFERENCE/DOCKET NUMBER: 0575,
TELECOMMUNICATION INFORMATION:
TELEPHONE: 212-278-0400
TELEPRAX: 212-391-0525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: 1: SEQUENCE CHARACTERISTICS: LENGTH: 3489 base pairs TYPE: nucleic acid STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CITY: New York
STATE: New York
COUNTRY: U.S.A.
2IP: 10036
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy di
                                                                                                                                                                                                                                                             1..3489
                                                                                                                                                                                                                                   366 gagaaggaa 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; LOCATION:
US-08-728-323A-1
                                                                                                                                                                                                                                                                                                                                  RESULT 15
US-08-728-323A-1
                                                                                                                                                        δλ
                                                                                                                                                                                                                                   δλ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
```

Search completed: July 15, 2002, 11:43:07 Job time: 8849 sec